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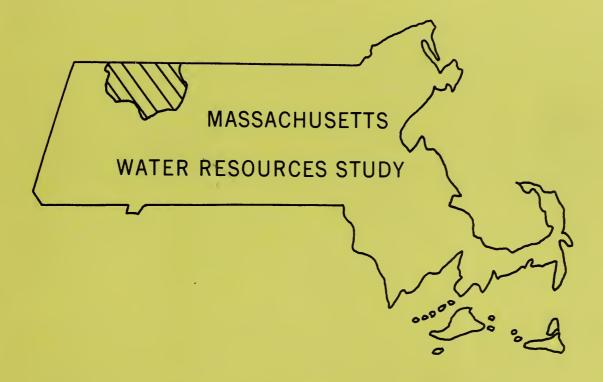
INVENTORY

of

POTENTIAL and EXISTING UPSTREAM RESERVOIR SITES

DEERFIELD STUDY AREA

Massachusetts



U.S. DEPARTMENT of AGRICULTURE
Soil Conservation Service
Economic Research Service
Forest Service

In cooperation with the

MASSACHUSETTS WATER RESOURCES COMMISSION

NOVEMBER 1972

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FOREWORD

CATALOGING - PREP.

The United States Department of Agriculture, in cooperation with the Massachusetts Water Resources Commission, is participating in the five-year Massachusetts Water Resources Study of the water and related land resources of the Commonwealth. One phase of this study is the inventorying of potential and existing upstream reservoir sites.

The Commonwealth of Massachusetts, through the Water Resources Commission, provides guidance and a significant financial contribution toward this phase of the Massachusetts Water Resources Study. The Massachusetts Water Resources Commission, to fulfill its responsibilities under Chapter 620, Acts of 1956 and Chapter 767, Acts of 1970, requires technical and engineering data and information on potential upstream reservoir sites. The Department of Agriculture is participating in this study under the provisions of Section 6 of the Watershed Protection and Flood Prevention Act (Public Law 566, 83rd Congress, as amended) which authorizes the Secretary of Agriculture to cooperate with other federal, state and local agencies, in surveys and investigations of the watersheds of rivers and other waterways as a basis for the development of coordinated programs.

This report, prepared by the Soil Conservation Service and submitted by the USDA Field Advisory Committee to the Water Resources Commission, identifies and inventories potential and existing upstream reservoir sites within the Deerfield Study Area. The identification of potential Public Law 566 projects was not a purpose of this study. No attempt was made to locate or evaluate possible PL 566 watersheds.

The Massachusetts Water Resources Commission will use this report, together with other reports and studies prepared by the United States Department of Agriculture and others, in the preparation of a comprehensive plan for the Commonwealth's water and land resources.

The information and data contained herein will also assist local, state and federal agencies in their specific planning activities for the coordinated and orderly conservation, development, utilization and management of the water and land resources to meet the rapidly expanding needs.

Dr. Benjamin Isgur, State Conservationist Soil Conservation Service and

Chairman, Field Advisory Committee

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These include:

Board of Supervisors
Berkshire Conservation District

Board of Supervisors Franklin Conservation District

Department of Civil Engineering University of Massachusetts

Division of Water Pollution Control Massachusetts Water Resources Commission

Massachusetts Department of Natural Resources

Soil Conservation Service personnel prepared this report. Ernest Richards was responsible for the development of the engineering phases of this report. Raymond Curran, John Gammell, and Chester Konieczny collected and processed basic site data. Donald Mills reported on geological conditions. Lorraine Barrett and Sarah Boy typed field reports. Kathy Sullivan typed the final manuscript. James Wesoloski was responsible for editing and publication.

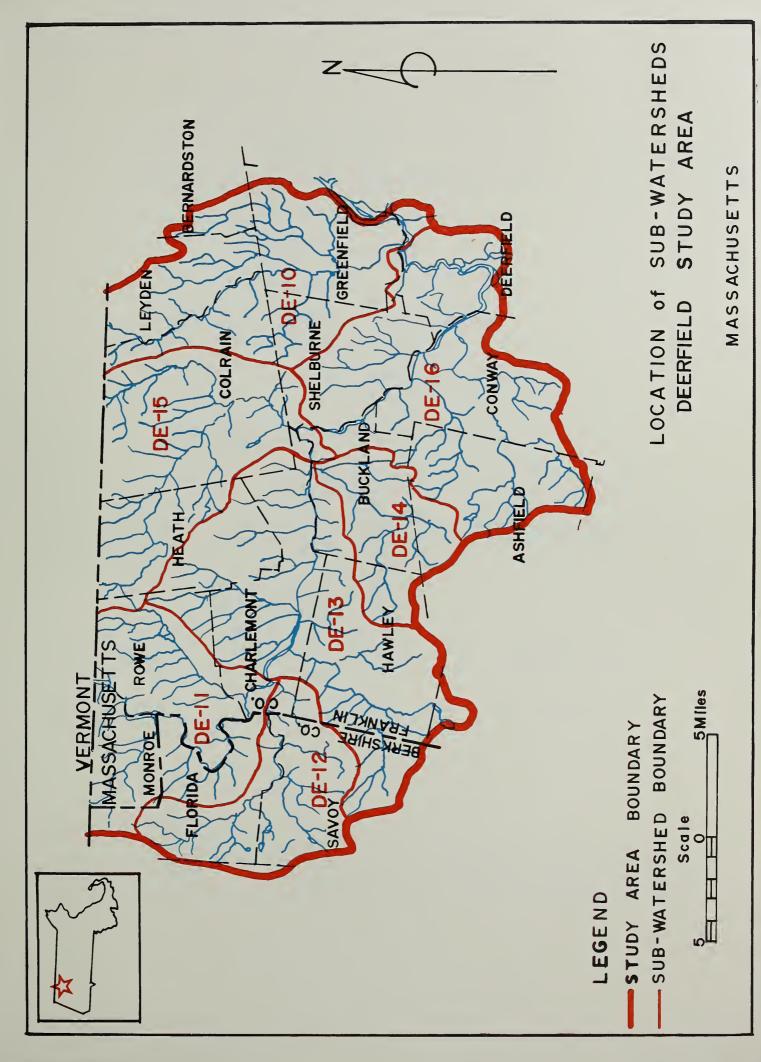
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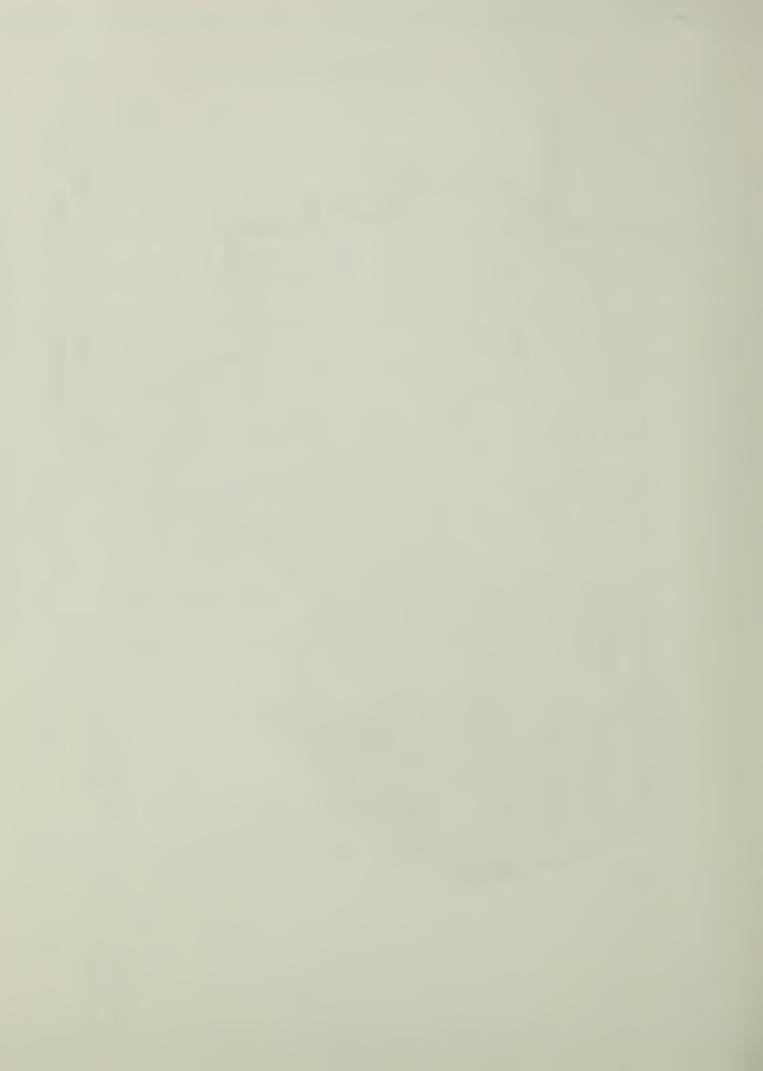
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INVENTORY OF

POTENTIAL AND EXISTING UPSTREAM RESERVOIR SITES

in the

DEERFIELD STUDY AREA

prepared by the

UNITED STATES DEPARTMENT OF AGRICULTURE

,) SOIL CONSERVATION SERVICE

in cooperation with the

MASSACHUSETTS WATER RESOURCES COMMISSION

INTRODUCTION

This report presents data on 106 potential and 10 existing reservoir sites in the Deerfield Study Area, Berkshire and Franklin Counties, Massachusetts.

DESCRIPTION OF STUDY AREA

The Deerfield Study Area is located in north-western Massachusetts and includes all of the Deerfield River Watershed in the state.

Major tributaries include the Chickley, Cold, Green, and North Rivers.

The Study Area covers about 221,500 acres or 346 square miles and is divided into 7 subwatersheds. Portions of 20 towns lie within the study area boundaries.

CRITERIA

Potential Reservoir Sites

The primary considerations used to identify potential reservoir sites were: suitable topography, a compact economical dam location, sufficient drainage area to maintain the proposed reservoir and a relatively undeveloped pool area.

The following criteria were used as a guide in site selection:

- 1. Drainage area -- larger than one half square mile, but not greater than 50 square miles.
- 2. Ratio of drainage area to potential beneficial pool surface -- not less than 10 to 1.
- 3. Minimum beneficial pool depth -- 7 feet at the dam.
- 4. Minimum beneficial pool area -- 10 acres.
- 5. Minimum beneficial pool capacity -- 100 acre feet.
- 6. Maximum beneficial pool capacity -- volume equal to 25 inches of runoff from the drainage area.
- 7. Maximum height of dam -- 100 feet.
- 8. Pool area relatively undeveloped -- no housing developments or major highways inundated.

Existing Reservoirs

Existing reservoirs were located using the U. S. Geological Survey (USGS) quadrangle sheets. Two criteria were used to determine sites to be included in this report:

- 1. Surface area -- at least 10 surface acres.
- 2. Man-made dam -- Natural ponds and beaver dams are excluded.

Hydroelectric dams along the Deerfield River are not included in the inventory.

INVESTIGATIONS AND ANALYSES

Potential Reservoir Sites

Sites were located using the latest available U.S.G.S. 7½ minute quadrangle sheets. Natural basins, or topography favorable for storage of water, and an economical location for an embankment were the primary considerations in the initial site selection. Watershed boundaries were delineated on the quadrangle sheets and the drainage area was determined for each initial site selected. Water storage areas and volumes available upstream of the site centerline were calculated. Data were also obtained to calculate the volume of earth fill required for the dam and any supplementary dikes that might be needed to contain a reservoir.

At each potential site, an engineer made a field reconnaissance that included an inventory of land and facilities (man-made structures) that would be affected if a dam and reservoir were constructed on the site. If it was determined that the reservoir would flood extensive man-made facilities; or a study of the elevation-area-storage data showed that the site did not meet criteria for the study, the site was dropped from further consideration.

A geologist made a surficial investigation of each potential site to determine any obvious geologic conditions that might affect the site's waterholding capability or require expensive foundation preparation. A preliminary geological report was prepared which outlined the types of materials which might be expected at the site and their effect on construction costs and waterholding capabilities for the site. The report of geologic conditions was based on the geologist's interpretation following the surficial investigation of the site and the surrounding area. No borings were made at any site and subsurface conditions may vary from those indicated in this report.

Hydrologic and hydraulic data were calculated using methods developed by the Soil Conservation Service. Rainfall data were obtained from Technical Paper 40 and 49, U. S. Department of Commerce, Weather Bureau.

Preliminary design calculations for several levels of development for each site were processed by electronic computer, using a program which determines the most economical type of principal spillway; determines the runoff and peak flow for the 100-year frequency, 10-day duration principal spillway design storm; routes the design storm to set the emergency spillway crest; performs other routings to determine the design high water and top of dam elevations; calculates embankment yardage and other construction quantities; determines the total estimated cost of the reservoir; and calculates "safe yield" for water supply purposes.

Existing Reservoirs

In addition to the potential site inventory, an inventory was made of 10 existing reservoirs that cover at least 10 surface acres and are formed by a man-made dam. The reservoirs were located using the USGS quadrangle sheets. A field reconnaissance was made to determine the physical condition of each structure and to assess the potential for expansion of the reservoir. While at the site, photographs were taken. Selected photographs are included in this report. The ownership and use of many of the reservoirs were obtained from records of the Massachusetts Department of Public Works. Hydroelectric dams along the Deerfield River are not included in the inventory.

COSTS

Preliminary cost estimates for potential reservoir sites were based on costs and land values as of 1971. The cost estimates include: (1) construction costs; (2) contingencies; (3) engineering and administrative services necessary for surveys, geology, final design, and construction inspection; (4) cost for land required for the reservoir and construction of the dam and spillway; and (5) costs associated with the purchase or relocation of man-made facilities affected by the constructed reservoir.

Construction costs were based on recent dam construction contract costs in Massachusetts. A factor for contingencies, equal to 15% to 25% of the construction cost, was included to account for the of items that might not have been considered at this intensity of study. Engineering and administrative services ranged form 20% to 40% of the construction cost.

Costs for land acquisition were based on an evaluation of current real estate transactions and market conditions. Land with potential for development was valued at from \$1,000 to \$10,000 per acre; land with little development potential was valued at from \$200 to \$500 per acre. Land values also varied from site to site based on the proximity to developed areas and highways; development taking place in the area; and suitability for development. Land needed for the dam, spillway and design high water pool was included in the land acquisition cost.

Cost estimates are presented on the basis of a cost per-acre-foot of storage and cost per surface acre to provide a comparison between different sites and different levels of development at the same site. Costs are based on preliminary estimates; firm cost estimates for any site can be determined only after completion of detailed geologic and engineering investigations, final structural designs, and land appraisals.

No cost estimates are included for existing reservoirs.

REPORT CONTENTS

This report is divided into sections based on the seven subwatersheds in the Deerfield Study Area. A location map, placed after the Table of Contents, outlines the area covered by each subwatershed. To aid local residents in determining which sites are located in their city or town, Appendix 1 contains a listing of municipalities within the study area and an index of the potential and existing sites and page numbers pertaining to that city or town.

Each subwatershed section provides "Site Data" for the potential and existing reservoir sites located within the subwatershed.

Potential Reservoir Sites

These site data include a <u>location</u> paragraph which contains a narrative description of the location of the site in reference to nearby roads, railroads, or other physical landmarks. In addition, the latitude, longitude and USGS quadrangle sheet name are provided to enable more accurate location.

Man-made facilities that would be flooded by a reservoir at the potential site are presented in the <u>Facilities Affected</u> paragraph of the site data. The elevation of <u>existing facilities</u> was estimated during the <u>engineer</u>'s field reconnaissance with the aid of the USGS quadrangle sheets.

A summary of the preliminary geologic report is contained in the Geologic Conditions paragraph. The material in the abutments (the valley sides) and the foundation (the valley floor) is described. An estimate is made of the depth to bedrock and the probable type of rock. The availability of fill material which would be used in the dam construction is noted.

Possible leakage problems are indicated and the waterholding capability of the site is subjectively described as "good," "fair," or "poor." The waterholding capability statement is based on the geologist's interpretation of the surficial conditions he has observed during the field reconnaissance.

Engineering Notes provide information which should be helpful in preliminary design of a dam. One of the abutments is recommended as the location for an excavated emergency spillway. The excavated spillway might be in earth or rock cut -- depending upon the depth to bedrock in the abutment. If an excavated emergency spillway is unable to carry the required flows at safe velocity, the need for a concrete emergency spillway is noted. If waterholding capability can be significantly improved with a practical cutoff through pervious abutment or foundation material, this fact is also noted.

When it is known that some portion of a reservoir site is located on land owned by a governmental or quasi-public unit, the information is presented in a Public Ownership paragraph.

Potential sites which meet study criteria have been analyzed using a computer program which develops preliminary structure designs for several levels of beneficial pool. Results of the computer program are presented in the tables entitled Summary Data for Potential Upstream Reservoir Sites at the end of each subwatershed section. Two information lines contain data on site drainage area, USGS quadrangle name on which the site is located, latitude and longitude of the site, site rating, stream water quality, and principal spillway design storm runoff and peak flow. The site rating is based on the expected waterholding capability, as determined in the preliminary geologic reconnaissance. Sites are given one of the following ratings:

- 1. Suitable for deep permanent storage (over 10 feet in depth).
- 2. Best suited for shallow water storage (3 to 5 foot maximum depth).
- 3. Best suited for temporary storage (e.g., floodwater and sediment storage).

In order to furnish the most data for each potential reservoir site, each site was considered to be suitable for deep permanent storage (rating "l") for purposes of design and analyses. The rating for any site could change based on detailed geologic investigations.

Stream water quality ratings are based on classifications assigned by the Division of Water Pollution Control, Massachusetts Water Resources Commission, and published in <u>Water Quality Standard</u>, June 1967 and are as follows:

- "Class A -- Waters designated for use as public water supply in accordance with Chapter lll of the General Laws.

 Character uniformly excellent.
- "Class B -- Suitable for bathing and recreational purposes including water contact sports. Acceptable for public water supply with appropriate treatment.

 Suitable for agricultural, and certain industrial cooling and process uses; excellent fish and wildlife habitat; excellent aesthetic value.
- "Class C -- Suitable for recreational boating; habitat for wildlife and common food and game fishes indigenous to the region; certain industrial cooling and process uses; under some conditions acceptable for public water supply with appropriate treatment. Suitable for irrigation of crops used for consumption after cooking. Good aesthetic value.
- "Class D -- Suitable for aesthetic enjoyment, power, navigation, and certain industrial cooling and process uses. Class "D" waters will be assigned only where a higher water use class cannot be attained after all appropriate waste treatment methods are utilized."

The Summary Data for Potential Upstream Reservoir Sites tables also contain data for as many as six possible levels of development at each site. Elevations of the beneficial pool, emergency spillway crest, design high water, and top of dam are shown along with pertinent storage volumes, surface areas and depths. Total cost expressed in dollars per acre foot of storage and dollars per surface acre are provided to aid in comparison of levels of development. The emergency spillway type which was used in the preliminary design is indicated by an emergency spillway type code explained in the table notes.

There tables are photo-reductions of the computer output sheets. Elevations are shown to the tenth of a foot and costs to the nearest \$10, but are not to be considered that accurate because of the limited investigations made with preliminary data. All the Summary Data Tables are based on preliminary reconnaissance-type investigations and computer-produced structure designs. Additional detailed engineering, geologic and design investigations must be made before final site selection, land acquisition and final design would be practical.

Estimated safe yield for each potential reservoir are also shown on the tables and were based on information extrapolated from data developed by Professor G. R. Higgins, Civil Engineering Department, University of Massachusetts. These estimated safe yields are based on a 95% chance, or the minimum yield that could be expected 19 years out of 20 -- taking into consideration reservoir storage volume and expected runoff. These data do not consider evaporation, seepage, or prior upstream usage losses.

The Committee on Rainfall and Yield of Drainage Areas of the New England Water Works Association has recommended a figure of 600,000 gallons per day per square mile as a maximum economically feasible safe yield. Data for some of the potential sites in this report show a safe yield above 600,000 gallons per square mile per day; these higher values are useful to define the upper portion of a discharge-storage curve for preliminary analysis. For detailed evaluation of a potential site or water supply purposes, the recommendation of the New England Water Works Association should be considered.

Existing Reservoirs

Site data for existing reservoir sites are presented in a different format from the potential reservoir site data:

Location is indicated by reference to nearby roads, railroads or other physical landmarks. The appropriate USGS quadrangle sheet is indicated.

Physical data (surface area, height of dam, and drainage area) were estimated from the quadrangle sheet and by field reconnaissance.

Potential for Expansion of the existing reservoir is estimated and any major man-made facilities which would be affected by an enlarged reservoir are noted. In some instances, the drainage area of the reservoir does not meet the criteria requiring a 10 to 1 drainage area to pool area ratio, below which there may be relatively high evaporation losses. An increase in reservoir surface area might increase evaporation losses to a point where the reservoir could not be maintained during the summer months. These situations are indicated by the statement "Small drainage area may limit further expansion."

A description of the dam and spillway system is included in the Remarks paragraph. Construction materials, spillway type and size, and condition of the structures are noted.

Ownership and Use of the reservoir is indicated, if available.

Some existing reservoirs that did not meet the study criteria (10 acre minimum surface area and a man-made dam) have been included in the report to present the information that may have been obtained.

MAPS

Individual subwatershed maps appear at the end of each section which indicate the location of the potential and existing reservoir sites in that subwatershed. The maps are reductions of mosaics prepared from 7½ minute USGS quadrangle sheets (1" = 2000' scale). The quadrangle sheets used and published dates are listed on the maps. Potential sites that met study criteria and which have information in the tables are indicated with a red rectangle surrounding the site number. The maximum beneficial pool (from the Summary Data Tables) is indicated by a large blue wave pattern. The drainage area upstream of these sites is indicated by green shading.

Existing reservoir sites are identified by a red circle surrounding the site number and a small blue wave pattern over the existing surface area.

DEERFIELD STUDY AREA SITE DATA FOR

Subwatershed DE-10, Green River

The Massachusetts portion of the Green River Subwatershed covers about 34,800 acres in Bernardston, Deerfield, Leyden, Colrain, Greenfield and Shelburne; all in Franklin County.

The Green River originates in Vermont and flows south-southeasterly through Colrain, Leyden and Greenfield to its confluence with the Deerfield River. Elevations, in Massachusetts range from 1,254 feet on Ball Mountain to about 120 feet at the confluence.

Geology in the subwatershed is predominantly characterized by schist bedrock overlain by glacial till or englacial drift. Some sandstone bedrock was also noted.

Thirteen potential reservoir sites and one existing reservoir were studied.

SITE DE-1001

Location:

On Thorne Brook about 600 feet upstream from River Road, Leyden, Massachusetts.

Colrain, Massachusetts U.S.G.S. Quadrangle

Latitude: 42°43'26" Longitude: 72°39'56"

Facilities Affected:

None below elevation 650.

Geologic Conditions: Both abutments are thin discontinuous outcrops of englacial drift underlain by schist bedrock. Surficial deposits are englacial drift, swamp, and schist bedrock. Bedrock is slightly fractured with fractures two to six feet apart. Rock outcrops appear downstream from the centerline. Depth to bedrock in the foundation is estimated to be from five to ten feet. Waterholding capabilities appear to be good. Borrow material for dam construction was located near the site.

Engineering Notes:

Preliminary structure designs indicate that a concrete chute emergency spillway will be needed to avoid excessive velocity in the earth emergency spillway.

Location:

On Hibbard Brook about 700 feet downstream from West Leyden Road in Leyden, Massachusetts.

Colrain, Massachusetts U.S.G.S. Quadrangle

Latitude: 42°42'20" Longitude: 72°39'13"

Facilities Affected:

Facilities Elevation
West Leyden Road 825
Electric line 825

Geologic Conditions:

The left abutment is thin discontinuous outcrops of englacial drift underlain by schist bedrock. The right abutment is glacial till. The surficial deposits are englacial drift, glacial till and schist bedrock. Bedrock is slightly fractured in outcrops; fractures are two to six feet apart. Streambed materials are cobbles and boulders. Depth to bedrock in the foundation is estimated to be from ten to fifteen feet. Waterholding capabilities appear to be good. Borrow material for dam construction was located near the site.

Engineering Notes:

The right abutment is recommended for the emergency spillway location. If the site is developed to elevation 835 feet, a dike will be required in the northeast section of the pool. If development is to elevation 845 feet, a dike will also be required in the northwest section of the pool.

SITE DE-1003

Location:

On Glen Brook about 1600 feet downstream from Brattleboro Road in Leyden, Massachusetts.

Colrain, Massachusetts U.S.G.S. Quadrangle

Latitude: 42°41'33" Longitude: 72°37'33"

Facilities Affected:

FacilitiesElevationGas station810Frizell Hill Road795Electric line795Brattleboro Road7832 sheds745

Geologic Conditions:

Both abutments are thin discontinuous englacial drift underlain by phyllite or schist bedrock. Surficial deposits are glacial drift and schist or phyllite bedrock. The bedrock is highly fractured in outcrops. Streambed materials are cobbles and boulders. Depth to bedrock in the foundation is estimated to be from five to ten feet. Waterholding capabilities appear to be good. Borrow material for dam construction was located near the site.

Engineering Notes:

The left abutment is recommended for the emergency spillway location. For a low dam there is probably enough borrow from the emergency spillway and right abutment for dam construction. Borrow for a high dam may have to come from a off-site source.

Location:

On Johnson Brook about 400 feet downstream from Shelburne Line Road in Colrain, Massachusetts.

Colrain, Massachusetts U.S.G.S. Quadrangle

Latitude: 42°40'29" Longitude: 72°40'01"

Facilities Affected:

Facilities	Elevation
House	765
House	740
West Leyden Road	735
Electric Lines	735
Shelburne Line Road	715
Electric Lines	715

Geologic Conditions: Both abutments show schist bedrock at the valley floor with thin discontinuous outcrops of englacial drift underlain by schist bedrock high on both abutments. Surficial deposits are englacial drift and schist bedrock. In outcrops the bedrock is moderately fractured. Fractures are from one to three feet apart. The foundation consists of outcrops of schist bedrock. Streambed material is bedrock. Waterholding capabilities appear to be good. Borrow material for dam construction was located near the site.

Engineering Notes:

The left abutment is recommended for the emergency spillway location.

SITE DE-1005

Location:

On East Glen Brook about 1600 feet downstream from East Glen Road in Leyden, Massachusetts.

Bernardston, Massachusetts U.S.G.S. Quadrangle Latitude: 42°40'33" Longitude: 72°36'34"

Facilities Affected:

Facilities
East Glen Road

Elevation 872

Geologic Conditions:

Both abutments are thin discontinuous englacial drift underlain by phyllite or schist bedrock. Surficial deposits are englacial drift and phyllite bedrock. Rock outcropping is highly fractured. Depth to bedrock in the foundation is estimated to be from five to ten feet. Waterholding capabilities appear to be good. Borrow material for dam construction was located near the site.

Engineering Notes:

The right abutment is recommended for the emergency spillway location. There is a saddle on the left abutment that might be utilized as an emergency spillway for a high dam.

Location:

On Johnson Brook about 300 feet downstream from Fort Lucas

Road in Colrain, Massachusetts.

Colrain, Massachusetts U.S.G.S. Quadrangle

Latitude: 42°40'13" Longitude: 72°40'45"

Facilities Affected:

Facilities	Elevation
House and barn	905
House and barn	895
Large electric lines	880
Fort Lucas Road	870
West Leyden Road	870

Geologic Conditions:

The left abutment is a thin discontinuous deposit of glacial drift underlain by schist bedrock. The right abutment is glacial till. The surficial deposits are glacial till, englacial drift, and schist bedrock. The bedrock is moderately fractured in outcrops. Fractures are two to three feet apart. Streambed materials are cobbles and boulders. Depth to bedrock in the foundation is estimated to be from 15 to 20 feet. Waterholding capabilities appear to be good. Borrow material for dam construction was located near the site.

Engineering Notes:

The right abutment is recommended for the emergency spillway location.

SITE DE-1007

Location:

On Workman Brook about 500 feet downstream from East Colrain Road in Colrain, Massachusetts.

Colrain, Massachusetts U.S.G.S. Quadrangle Latitude: 42°39'03" Longitude: 72°38'44"

Facilities Affected:

Facilities Elevation
Farm house and buildings 755
East Colrain Road 710

Geologic Conditions:

The left abutment is glacial till. The right abutment thin englacial drift or till. Surficial deposits are swamp, glacial drift and glacial till. Streambed material is cobbles. Depth to bedrock in the foundation is estimated to be from fifteen to twenty-five feet. Waterholding capabilities appear to be good. Borrow material for dam construction was located near the site.

Engineering Notes:

The left abutment is recommended for the emergency spillway location. If the site is developed to elevation 735 feet, a dike will be required to the northeast of the reservoir.

Location:

On Hinsdale Brook about 4600 feet upstream from Shelburne-Colrain Road in Shelburne, Massachusetts.

Colrain, Massachusetts U.S.G.S. Quadrangle

Latitude: 42°39'03" Longitude: 72°40'31"

Facilities Affected:

None below elevation 910

Postlitto

Geological Conditions:

Both abutments and surficial deposits are glacial till. Streambed material is cobbles. Depth to bedrock in the foundation is estimated to be from 15 to 25 feet. Water-holding capabilities appear to be good. Borrow material

for dam construction was located near the site.

Engineering Notes:

The left abutment is recommended for the emergency spillway location.

SITE DE-1009

Location:

On Hinsdale Brook about 100 feet downstream from Fiske Mill Road in Shelburne, Massachusetts.

El arration

Colrain, Massachusetts U.S.G.S. Quadrangle Latitude: 42°38'09" Longitude: 72°39'46"

Facilities Affected:

Lievation
725
720
710
710
710
705
705
685
685
685
680
675
670
670
655

Geologic Conditions:

Both abutments are glacial till with schist bedrock in the stream. Surficial deposits are glacial till and schist bedrock. Rock outcrops are moderately fractured with fractures 2 to 6 feet apart. Bedrock is exposed about 100 feet upstream from the dam. Streambed materials are cobbles and boulders. Waterholding capabilities appear to be good. Borrow material for dam construction was located near the site.

Engineering Notes:

The left abutment is recommended for the emergency spillway location. If the site is developed to elevation 685 feet, a dike will be required to the south of the reservoir.

Location:

On McCard Brook about 3,200 feet downstream from Barton Road in Greenfield, Massachusetts.

Bernardston, Massachusetts U.S.G.S. Quadrangle Latitude: 42°38'09" Longitude: 72°35'42"

Facilities Affected:

None below elevation 300.

Geologic Conditions:

Both abutments are outwash sand and gravel but may be underlain by lacustrine deposits. Surficial deposits are swamp and outwash sand and gravel. Streambed material is gravel. Depth to bedrock in the foundation is estimated to be from 80 to 100 feet to Triassic sandstone. Waterholding capabilities appear to be fair. There is possible leakage through both abutments and the foundation. An extensive drilling program will be required to determine the extent of the leakage. Borrow material for dam construction was located near the site.

Engineering Notes:

The right abutment is recommended for the emergency spillway location. If the site is developed to elevation 295 feet, a dike will be required to the west of the reservoir.

SITE DE-1011

Location:

On Mill Brook about 1,000 feet upstream from Route 91 in Greenfield, Massachusetts.

Greenfield, Massachusetts U.S.G.S. Quadrangle Latitude: 42°36'48" Longitude: 72°36'23"

Facilities Affected:

Facilities	Elevation
House and garage Tobacco shed House and garage Boston & Maine railroad tracks	267 267 265 265
Steel tower, high tension lines	258
Electric lines, wood poles, (20 lines)	258
Telephone lines, (2 lines) Picnic pavilion Country Club Road Golf course Country Club	258 255 255 250 250

SITE DE-1011 (Cont'd)

Geologic Conditions:

The right abutment is thinly bedded silts and clays with consolidated sandstone high on the slope. The left abutment is consolidated sandstone. The surficial deposits are swamp, sandstone, bedrock, and thinly bedded lacustrine deposits. Rock outcropping is slightly fractured with fractures six to eight feet apart. Streambed materials are silts and clays. Depth to bedrock in the foundation is estimated to be from 40 to 50 feet. Waterholding capabilities appear to be good. Borrow material for dam construction was located near the site.

Engineering Notes:

The right abutment is recommended for the emergency spillway location. The material from the borrow area can probably be used for the core of the dam; however, other material will have to be located for the shell. Preliminary structure designs indicate that a concrete chute emergency spillway may be required at this site.

SITE DE-1012

Location:

On Wheeler Brook about 1500 feet upstream from Greenfield Road in Shelburne, Massachusetts.

Shelburne, Massachusetts U.S.G.S. Quadrangle Latitude: 42°35'32" Longitude: 72°38'54"

Facilities Affected:

FacilitiesElevationUtility lines720Old Greenfield Road715House712

Geologic Conditions:

Both abutments are thin discontinuous outcrops of englacial drift underlain by schist bedrock. The surficial deposits are glacial drift and schist bedrock. The bedrock is moderately fractured in outcrops with the fractures approximately one to five feet apart. At the dam site, schist bedrock is exposed. Streambed materials are gravel and bedrock. Water-holding capabilities appear to be good. Borrow material for dam construction was located near the site.

Engineering Notes:

The right abutment is recommended for the emergency spillway location.

Location:

On Glen Brook about 1400 feet upstream from Leyden Road in Greenfield, Massachusetts.

Bernardston, Massachusetts U.S.G.S. Quadrangle

Latitude: 42°38'47" Longitude: 72°36'31"

Facilities Affected:

None below elevation 350.

Geologic Conditions: Both abutments are outwash sand and gravel. The surficial deposits are swamp and outwash sand and gravel. Streambed' material is gravel. Depth to bedrock in the foundation is estimated to be from 60 to 70 feet to shale. Water-holding capabilities appear to be poor. There will probably be leakage through both abutments and the foundation. Pervious material for dam construction was located near the site; impervious material was not located.

Engineering Notes:

If the site is developed to elevation 345 feet, a dike will be required to the northeast of the reservoir. This site probably should be used for temporary storage of water because of the leakage problem. The borrow material can be used for the shell of the dam. A more impervious material will have to be located for the core of the structure. Preliminary structure designs indicate that a concrete chute emergency spillway will probably be required at this site.

SITE DE-10A (Greenfield Reservoir)

Location:

On Glen Brook approximately 800 feet upstream from East Glen Road in Leyden, Massachusetts.

Leyden, Massachusetts U.S.G.S. Quadrangle

Surface	Surface Area	Height of	Drainage Area
Elevation	(Acres)	Dam (Ft.)	Acres Sq. Mi.
525	7	40 approx.	3352 5.24

Potential for Expansion:

Severely limited by the steep, narrow valley.

Remarks:

The dam is a combination rock, earth fill and concrete structure. The upstream side is faced with concrete, and the downstream side is faced with rock. Trees and brush are growing on the downstream side. The spillway constructed on bedrock on the east abutment is rock masonry with concrete at the crest. The exit channel is bedrock with a concrete wall on the west side; the concrete is crumbling in places.

Ownership and Use:

The reservoir is owned by the Town of Greenfield, Mass. and is used for municipal water supply.



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SUMMARY DATA FOR POTENTIAL UPSTREAM RESERVOIR SITES

SUMMARY DATA FOR POTENTIAL UPSTREAM RESERVOIR SITES

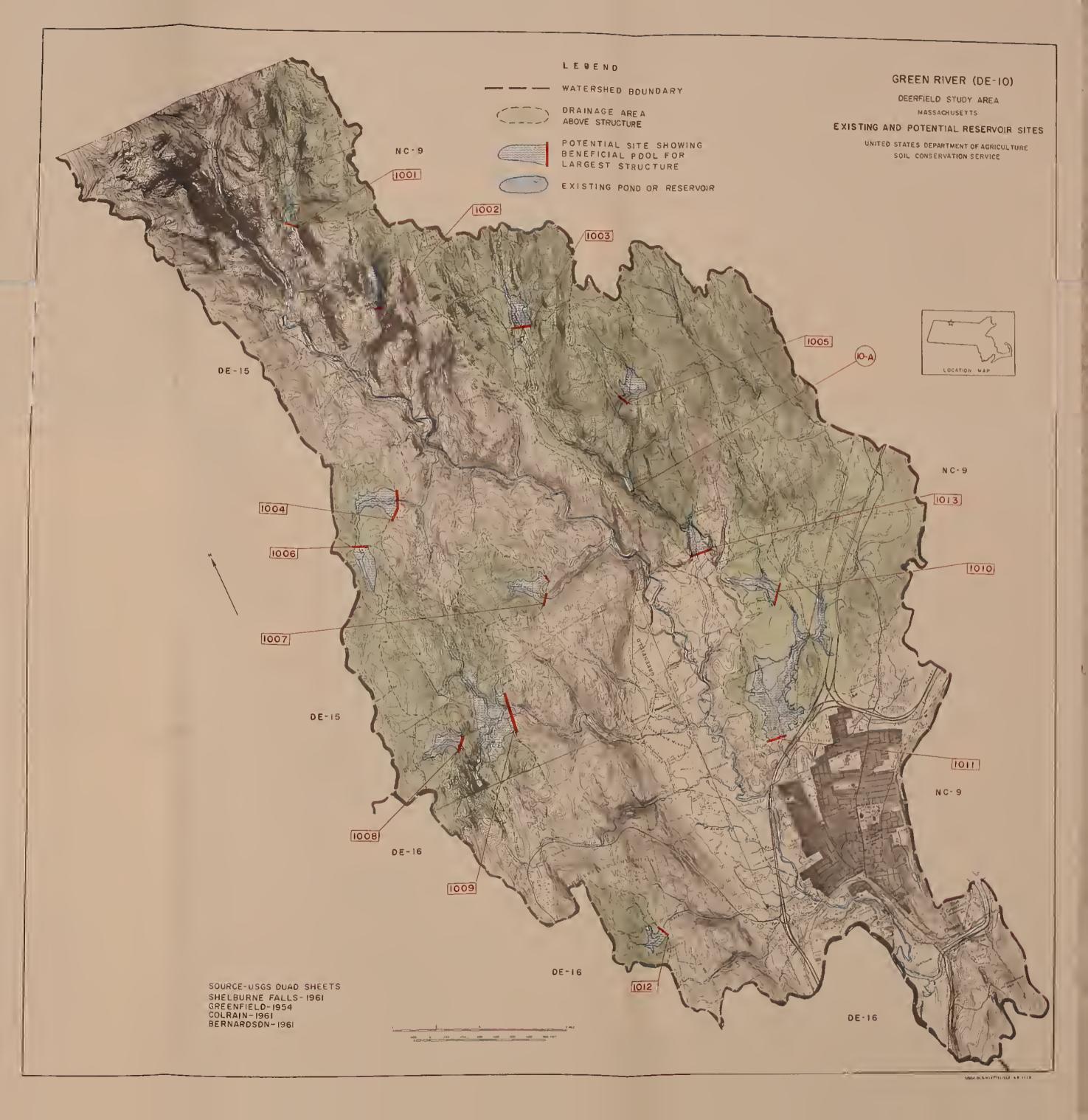
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SUMMARY DATA FOR POTENTIAL UPSTREAM RESERVOIR SITES

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**************************************	* 1	38-09 L(N, PEAK	4 25 7 23 7 27 7 30 7 34 9 34	48 4 PEAK 5	7 62 9 63 0 63	*** -32 PE	2 31 5 36 4 39 5 48 5 485	POOL SPILLWAYS
* * * * * * * * * * * * * * * * * * * *			294.4 291.7 295.7 298.7 302.7 302.9	42-36 42-36 30 IN, 265. 269.	269.	42-3 10 IN	13. 17. 21. 27. 29.	**************************************
RIVER IGN	AREA (AC)	***** TITUD = 8		ATITUDE F = 8. 293 *	1	***** IITUD = 8	19 23 26 35 41	* AAA * * * * * * * * * * * * * * * * *
	* > ~	******* LA RUNOFF	291.5 290.2 293.9 296.6 300.2	LA RUNOFF 258.0 261.5	265.1 266.5 267.4	**************************************	708.0 712.9 717.0 723.5 727.3	######################################
SUBMATERSHED-GREEN ***********************************	* C E S E S E S E S E S E S E S E S E S E	* * * * * * * N STORM * *	1220 * 1470 * 1220 * 1120 * 970 * 960 * 1120	370 * 870 *	270 * 440 * 370 *	FALLS N STORM	17 16 17 17 9	* W. =
****	**************************************	**************************************	221 4.1 190 3.5 294 5.5 405 7.6 618 11.6 630 11.8	-GREENFI SPWY DE 3856 7	118 12 677 9 061 12	SHELBURNE SPWY DESIG		TAL VCRE VAR
**************************************	* * *	**************************************	1	65 QUA 78 PRI 5.6 E	7.55	USGS QUAD-	703.5 E 707.5 E 712.2 E 719.3 E 725.0 E	CRI CRI TINF
######################################	DEPTH AT DAM (FT)	640 AC TY (B)	3.9 16.2 20.0 22.7 26.2 26.5	5926 AC ITY (B) 7.1	55.2	371 AC TY (8)	23.1 27.7 34.8 40.5	NOTES - (1) COSTS ARE BASED ON 1971 S.C.S. DESIGN (2) EMERGENCY SPILLWAY STORAGE AND COSTS (3) EMERGENCY SPILLWAY TYPE CODE- C=CONCR (4) TABULAR DATA ARE BASED ON PRELIMINARY (5) ELEVATIONS ARE SHOWN TO THE NEAREST O. (5) CONSIDERED ACCURATE TO THAT DEGREES ON THE NEAREST O.
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AREA-D	AREA (AC)	******** 1.00 SQ MI EAM WATER	19 26 36 54 55	9.26 SQ MI EAM WATER 18	196 302 380	**************************************	21 21 26 26 33	# # # # # # # # # # # # # # # # # # #
STUDY AREA-DEERFIELD RIVER	**************************************	**************************************	2190 1710 1550 1310 1300	DA	550 450 370	**************************************	2250 1830 1410 1130	**************************************
**** BENEF	STORAGE FT IN	(3)	2.4 3.9 3.9 5.5 8.6 7.8	(1)	6.1 9.3 12.1	(1)	0.0 6.4.6 7.3 7.3 7.12.8 3.18.2	COSTS ARE EMERGENCY EMERGENCY TABULAR CONSIDERE
* * * * * * * * * * * * * * * * * * * *	STO AC FT	***** E-1010 RATING	128 210 210 293 457 466	E-1011 RATING 2240	3028 4603 5987	**************************************	145 229 397 563	(2) E (4) 1 (5) E (5) E (5)
* * * * *	#**** ELEV (MSL)	**************************************	272.9 285.2 289.0 291.7 295.2 295.5	SITE-DE-1011 SITE RATIN 214.2 247.5 224	252.2 258.5 262.5	SITE-D SITE	686.4 705.0 709.7 716.8 722.5	NOTES

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2 1 8 7 1 2 0 1 0 1 0 1 0 0 0 0 0 0 0 0 0 0 0 0	BENEFICIAL POOL	COST COST COS PER SUR AC FT AC IN (\$) (AC) (\$	**************************************	7.8 1140 55 521 3.8 1060 59 507	S ARE BASED ON 1971 S SENCY SPILLMAY STORAG SENCY SPILLMAY TYPE C ARE DATA ARE BASED ON ATTONS ARE SHOWN TO T	TOERED ACCURATE TO THE		





DEERFIELD STUDY AREA SITE DATA FOR

Subwatershed DE-11, Deerfield River

The Massachusetts portion of this subwatershed covers about 27,800 acres in Charlemont, and Rowe, in Franklin County, and Florida and Monroe, in Berkshire County.

The major stream in this subwatershed is the Deerfield River which originates in Vermont and flows generally southerly to Charlemont where Cold River enters. Elevations, in Massachusetts range from 2,841 feet on Crum Hill to about 600 feet at the confluence with Cold River.

The Yankee Atomic Electric Power Plant and Sherman Dam are located just south of the Vermont border. The Bear Swamp Pumped Storage Project (under construction) is located about five miles downstream. The three developments are located on the Deerfield River.

Geology in the subwatershed is predominantly characterized by schist bedrock overlain by 5 to 30 feet of glacial till or englacial drift.

Sixteen potential reservoir sites and two existing reservoirs were studied.

SITE DE-1101

Location:	0n :	Dunba	r	Brook	about	300	feet	downstream	from	Turner
		-	-					1.1		

Hill Road in Monroe, Massachusetts.

North Adams, Massachusetts U.S.G.S. Quadrangle Latitude: 42°43'39" Longitude: 73°00'39"

Facilities	Facilities	Elevation
Affected:	Turner Hill Road (dirt)	1906
	Main Road	1905

Geologic
Conditions:
Both abutments are glacial till; shallow to schist bedrock. Surficial deposits are schist bedrock and glacial till. Bedrock is highly fractured in outcrops. Streambed material is cobbles. Depth to bedrock in the foundation is estimated to be from 5 to 15 feet. Waterholding capabilities appear to be good. Borrow material for dam construction was

located near the site.

Engineering The left abutment is recommended for the emergency Notes: spillway,

Location:

On an unnamed brook approximately 2,500 feet upstream from the confluence with Dunbar Brook. The confluence is approximately 600 feet upstream on Dunbar Brook from South Road in Monroe, Massachusetts.

North Adams, Massachusetts U.S.G.S. Quadrangle Latitude: 42°43'10" Longitidue: 73°00'09"

Facilities Affected:

None below elevation 2085.

Geologic Conditions: Both abutments are glacial till with the low areas probably shallow to schist bedrock. Surficial deposits are glacial till. Streambed material is cobbles. Depth to bedrock in the foundation is estimated to be from 5 to 15 feet. Waterholding capabilities appear to be good. Borrow material for dam construction was located near the site.

Engineering Notes:

The left abutment is recommended for the emergency spillway location. If the site is developed to elevation 2,070 feet, a dike will be required to the northeast of the reservoir.

SITE DE-1103

Location:

On Parsonage Brook about 1,100 feet downstream from Main Road in Monroe, Massachusetts.

Rowe, Massachusetts U.S.G.S. Quadrangle.

Latitude: 42°43'07" Longitude: 72°58'47"

Facilities Affected:

Elevation
1830
1818
1818
1810

Geologic Conditions:

Both abutments are thin glacial till underlain by schist bedrock. Surficial deposits are glacial till. Streambed material is cobbles. Depth to bedrock in the foundation is estimated to be from 5 to 15 feet. Waterholding capabilities appear to be good. Borrow material for dam construction was located near the site.

Engineering Notes:

The right abutment is recommended for the emergency spillway location. The proximity of bedrock to the surface and the availability of borrow material may make the left abutment more desirable. Additional geological investigations would provide this information.

Public Ownership:

Approximately three quarters of the pool area lies within the Monroe State Forest.

Location:

On Dunbar Brook about 500 feet upstream of the Franklin-Berkshire County Line in Monroe, Massachusetts.

Rowe, Massachusetts U.S.G.S. Quadrangle

Facilities Affected:

None

Engineering Notes:

Further study of this site was discontinued for the following reasons: the physical remoteness of the site, large drainage area, and very poor potential for storage, steepness of the reservoir area, proximity of bedrock to the surface, large boulders and erratics in the streambed and abutments. The structure would probably require a concrete chute spillway or a concrete gravity section, which would be expensive.

Public Ownership: The entire reservoir below elevation 1,300 feet, lies within the Monroe State Forest.

SITE DE-1105

Location:

On Wheeler Brook about 2,600 feet upstream from the Hoosic Tunnel and Wilmington Railroad in Rowe, Massachusetts.

Rowe, Massachusetts U.S.G.S. Quadrangle Latitude: 42°43'57" Longitude: 72°55'17"

Facilities Affected:

None below elevation 1470.

Geologic Conditions:

Both abutments are englacial drift underlain by schist bedrock. Surficial deposits are englacial drift. Streambed material is boulders. Depth to bedrock in the foundation is estimated to be from 5 to 15 feet. Waterholding capabilities appear to be good. Borrow material for dam construction was located near the site. Cobbles and boulders may comprise as much as 40% of the borrow material.

Engineering Notes:

The right abutment is recommended for the emergency spillway location. The dam should be designed in such a manner that the cobbles and boulders could be incorporated into the fill.

Location:

On Shippee Brook about 2,800 feet upstream from Ford

Hill Road in Rowe, Massachusetts.

Rowe, Massachusetts Quadrangle

Latitude: 42°42'48" Longitude: 72°54'40"

Facilities Affected:

Facilities Elevation
Shippees Road 1580
Electric lines (4 wire) 1580

Geologic Conditions:

Both abutments are glacial till. The surficial deposits are swamp, valley fill and glacial till. Streambed material is cobbles. Depth to bedrock in the foundation is estimated to be from 25 to 30 feet. Waterholding capabilities appear to be good. Borrow material for dam construction was located near the site.

Engineering Notes:

The left abutment is recommended for the emergency spillway location.

SITE DE-1107

Location:

On Potter Brook about 1,000 feet upstream from Leshures Road in Rowe, Massachusetts.

Rowe, Massachusetts U.S.G.S. Quadrangle

Latitude: 42°43'03" Longitude: 72°53'08"

Facilities Affected:

Facilities
House, barn and shed
Leshures Road
Utilities (6 wires, 3 cables) 1570

Geologic Conditions:

Both abutments are thin glacial till with schist bedrock at the higher elevations. Surficial deposits are swamp, glacial till and schist bedrock. Rock outcrops are moderately fractured with fractures from 2 to 8 feet apart. Streambed material is cobbles. Depth to bedrock in the foundation is estimated to be from 10 to 15 feet. Waterholding capabilities appear to be good. Borrow material for dam construction was located near the site.

Engineering Notes:

The right abutment is recommended for the emergency spillway location.

Location:

On Potter Brook about 1,300 feet upstream from Davis

Mine Road in Rowe, Massachusetts.

Rowe, Massachusetts U.S.G.S. Quadrangle

42°42'43" Longitude: 7205310211 Latitude:

Facilities Elevation Facilities House, barn and shed Affected: 1590 Leshures Road 1530 Utilities (6 wires, 3 cables) 1530

Geologic Conditions: Both abutments are thin glacial till underlain by schist bedrock. The surficial deposits are swamp and glacial till. Streambed material is cobbles, Depth to bedrock in the foundation is estimated to be from 15 to 20 feet. Waterholding capabilities appear to be good. Borrow material for dam construction was located near the site.

Engineering Notes:

The left abutment is recommended for the emergency spillway location.

SITE DE-1109

Location:

On Shippee Brook about 1,000 feet downstream from Ford Hill Road in Rowe, Massachusetts.

Rowe, Massachusetts U.S.G.S. Quadrangle

42°42'14" Longitude: 72°54'26" Latitude:

Facilities Facilities Elevation Affected: 2 houses, 2 sheds 1520 1520 Newell Cross Road Utilities 1520 1520 Shippee Road 1500 House 1450 Ford Hill Road

Geologic Conditions:

Both abutments are glacial till at lower elevations, schist bedrock at the top abutments, with thin englacial drift between outcrops. Surficial deposits are swamp, englacial drift, glacial till and schist bedrock. Rock outcrops are moderately fractured with fractures from 2 to 6 feet apart. Streambed material is cobbles. Depth to bedrock in the foundation is estimated to be from 5 to 15 feet. Waterholding capabilities appear to be good. Borrow material for dam construction was located near the site.

Engineering Notes:

The right abutment is recommended for the emergency spillway location.

Location:

On Sam Rice Brook about 2,300 feet downstream from Hazelton Road in Rowe, Massachusetts.

Rowe, Massachusetts U.S.G.S. Quadrangle

Latitude: 42° 11' 16" Longitude: 72° 54' 53"

Facilities Facilities Elevation
Affected: Cemetery 1500
Hazelton Road 1470
Utility lines 1470
Cable underground 1470

Geologic Conditions:

Both abutments are glacial till. The surficial deposits are swamp and glacial till. Streambed material is cobbles. Depth to bedrock in the foundation is 30 to 40 feet. Waterholding capabilities appear to be good. Borrow material for dam construction was located near the site.

Engineering Notes:

The left abutment is recommended for the emergency spillway location.

SITE DE-1111

Location:

On Pelham Brook about 300 feet upstream from Kings Highway Road in Rowe, Massachusetts.

Rowe, Massachusetts U.S.G.S. Quadrangle

Latitude: 42°41'34" Longitude: 72°53'57"

Facilities Affected:

Facilities	Elevation
2 cabins	1410
ll cabins	1408
2 houses, barn	1390
Library	1380
House, 2 garages, shed	1360
Pond Road	1350
Utility lines	1350
House	1345
Town Hall	1345
Hazelton Road	1340
Sibley Road	1340
First Congregational Church	1340
Utilities (5 wires)	1340
Middletown Hill Road	1340

Geologic Conditions:

Both abutments are thin glacial till underlain by schist bedrock. Surficial deposits are glacial till and schist bedrock. Streambed material is cobbles. Depth to bedrock in the foundation is estimated to be from 10 to 15 feet. Waterholding capabilities appear to be good. Borrow material for dam construction was located near the site.

SITE DE-1111 (Cont'd)

Engineering Notes:

See Existing Site DE-11A for a description of the present dam which would have to be removed and the silt in the reservoir area excavated prior to new dam construction. Preliminary structure designs indicate that a concrete emergency spillway (monolithic conduit or chute spillway) will be required at this site.

SITE DE-1112

Location:

Located at the outlet of Pelham Lake about 3,700 feet upstream from Kings Highway Road in Rowe Massachusetts.

Rowe, Massachusetts U.S.G.S. Quadrangle

Latitude: 42°41'59" Longitude: 72°53'41"

Facilities Affected:

Facilities Rowe School	Elevation 1460
Cyrus Stage Road	1440
Utilities (5 wires)	1440
Davis Mine Road	1440
4 houses, shed barn	1420
log cabin	1420
2 camps	1420
1 house	1418
Utilities (7 wires)	1410
Pond Road	1410
8 camps	1408

Geologic Conditions:

Both abutments are schist bedrock with englacial drift filling areas between bedrock outcrops. Surficial deposits are englacial drift and schist bedrock. Streambed material is cobbles. Depth to bedrock in the foundation is estimated to be from 5 to 15 feet. Waterholding capabilities appear to be good. Borrow material for dam construction was not located near the site.

Engineering Notes:

The left abutment is recommended for the emergency spillway location.

Location:

On Steele Brook about 1,000 feet downstream from Tunnel Road in Rowe, Massachusetts.

Rowe, Massachusetts U.S.G.S. Quadrangle

Latitude: 42°40'52" Longitude: 72°56'36"

Facilities Affected:

Facilities
Tunnel Road

Utilities (2 wires)

High Tension Lines (7 wires)

1310

1310

Geologic Conditions:

Both abutments are thin discontinuous outcrops of englacial drift underlain by schist bedrock. The surficial deposits are englacial drift and schist bedrock. The bedrock is highly fractured in outcrops. Streambed material is boulders. Depth to bedrock in the foundation is estimated to be from 5 to 15 feet. Waterholding capabilities appear to be good. Borrow material for dam construction was not located near the site.

Engineering Notes:

The emergency spillway should be located on the abutment that will require the least amount of rock excavation.

SITE DE-1114

Location:

On Taylor Brook about 2,900 feet downstream from Brittingham Hill Road in Rowe, Massachusetts.

Rowe, Massachusetts U.S.G.S. Quadrangle

Latitude: 42⁰41'04" Longitude: 72⁰55'47"

Facilities Affected:

Example Facilities

Brittingham Hill Road
Utilities (3 wire,
heavy cable)

Elevation 1370 1370

Geologic Conditions: Both abutments are glacial till, The surficial deposits are glacial till and schist bedrock. The bedrock is highly fractured in outcrops. Streambed material is cobbles. Depth to bedrock in the foundation is estimated to be from 20 to 25 feet. Waterholding capabilities appear to be good. Borrow material for dam construction was located near the site.

Engineering Notes:

The left abutment is recommended for the emergency spillway location.

Location:

On Pelham Brook about 400 feet upstream from Zoar Road in Charlemont, Massachusetts.

Rowe, Massachusetts U.S.G.S. Quadrangle

Latitude: 42°39:23" Longitude: 72°56:09"

Facilities Affected:

Facilities	Elevation
Camp	720
House	685
Camp	680
Camp	660
Trailer, garage	660
Rowe Road	640
Utilities	640

Geologic Conditions:

Both abutments are thin discontinuous outcrops of englacial drift underlain by schist bedrock. The surficial deposits are englacial drift and schist bedrock. Bedrock outcroppings are highly fractured. Streambed material is boulders. Depth to bedrock in the foundation is estimated to be from 5 to 15 feet. Waterholding capabilities appear to be good. Pervious borrow material for dam construction was located near the site. Impervious borrow material was not located.

Engineering Notes:

A concrete chute spillway will be required at this site.

SITE DE-1116

Location:

On Dunbar Brook about 50 feet upstream from South Road in Monroe, Massachusetts.

Rowe, Massachusetts U.S.G.S. Quadrangle

Latitude: 42°43'11" Longitude: 72°59'34"

Facilities Affected:

Monroe State Forest Headquarters are affected at about elevation 1,750 feet. Many buildings in the headquarters area are affected.

Geologic Conditions:

Both abutments are englacial drift underlain by schist bedrock. The surficial deposits are schist bedrock and glacial till. The bedrock is highly fractured in outcrops. Streambed materials are cobbles, boulders and bedrock. Rock outcrops at the centerline of the dam. Waterholding capabilities appear to be good. Borrow material for dam construction was located near the site.

SITE DE-1116 (Cont'd)

Engineering Notes:

The left abutment is recommended for the emergency spillway location.

Public Ownership:

Below elevation 1,840 feet, approximately 3/4 of the reservoir lies within the Monroe State Forest.

EXISTING SITE DE-11A

Location:

On Pelham Brook approximately 3000 feet downstream from Pelham Lake in Rowe, Massachusetts.

Rowe, Massachusetts U.S.G.S. Quadrangle

Surface Elevation	Surface Area (Acres)	Height of Dam (Ft.)	Drainag Acres	Sq.Mi.
1336	<u>)</u> ,	10	3016	4.71

Potential for Expansion:

Very limited. Expansion would require relocation of the main intersection in Rowe center. Pelham Lake (Site DE-11B) would tend to limit the summer flow available to an enlarged pool at this site. See Site Data and Summary Data Table for Potential Site DE-1111.

Remarks:

This is a concrete buttress dam with a 50-foot weir. The upstream abutments are concrete; the downstream are masonry. Flashboards can be used to raise the water level. The reservoir is nearly filled with silt.

Ownership and Use:

The reservoir is owned by the Town of Rowe, Massachusetts, and is used for recreation.

EXISTING SITE DE-11A





SITE DE-11B (Pelham Lake)

Location:

On Pelham Brook about 3000 feet northeast of the center of Rowe, Massachusetts.

Rowe, Massachusetts Quadrangle

Surface	Surface Area	Height of	Drainag	ge Area
Elevation	(Acres)	Dam (Ft.)	Acres	Sq.Mi.
1406	77	15	2615	4.09

Potential for

See Site Data and Summary Data Table for Potential Site DE-1112. Expansion:

Remarks:

The dam is about 235 feet long, 115 feet of masonry and 120 feet of stone with earth fill. The spillway is a 25 foot long stone weir, having a 1.5 foot maximum head. Brush is growing from the stone wall, and brush and trees are growing on the earth fill.

Ownership and

Use:

The reservoir is owned by the Town of Rowe, Massachusetts, and is used for recreation.

EXISTING SITE DE-11B





SUMMARY CATA FOR POTENTIAL UPSTREAM RESERVOIR SITES

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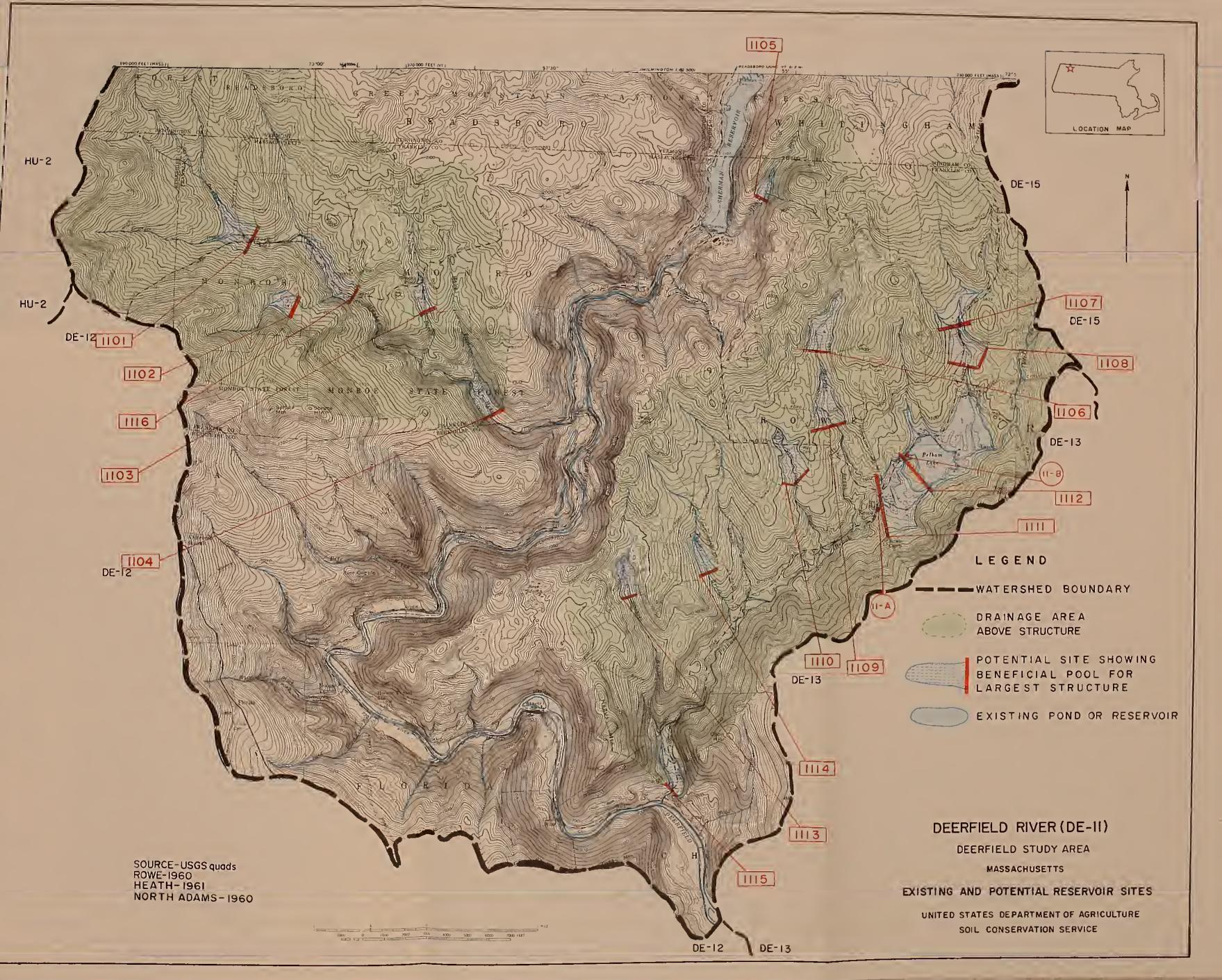
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**** ERGE	* CREST STCRAG * CREST STCRAG * TYPE * (MSL) AC FT ************************************	541.6 525.0 553.9 568.5 586.6	USGS QUAD-ROWE 00-YR PRIN SPWY DESI 1470.5 E 347 4.1 1459.1 T 184 2.2 1486.5 E 741 8.8 1501.4 E 1363 16.2 1515.0 E 2155 25.7	USGS QUAD- 100-YR PRIN SPWY DESI * 1452.4 E 148 4.1 * 1456.9 E 195 5.5 * 1466.6 E 332 9.3 * 1489.5 E 1007 28.2 * 1489.5 E 1007 28.2	BAA H D BA B B B B B B B B B B B B B B B B B
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· · · · · · · · · · · · · · · · · · ·	COST COST COST DEPTH	1508.5 0 0.0 3 8.5 1525.0 109 1.2 6160 11 58550 25.0 1543.4 469 5.1 2280 28 38340 43.4 1562.0 1188 13.1 1290 49 31400 62.0 1582.1 2267 25.0 1110 60 42180 82.1	SITE-DE-1109 DA= 1.57 SQ MI = 1005 AC SITE RATING (1) STREAM WATER QUALITY (8) 1430.8 0 0.0 2 800 11 4465C 39.0 1459.1 171 2.0 2800 11 4465C 39.0 1478.0 491 5.9 1740 23 3654C 58.0 1496.9 1132 13.5 1140 45 2847C 76.9 1512.5 1982 23.7 840 63 2649C 92.5	SITE—DE-1110 DA= 0.67 SQ MI = 429 AC SITE RATING (1) STREAM WATER QUALITY (B) 1426.0 0 0.0 2 2 6.0 1454.4 163 4.6 2100 10 3374C 34.4 1464.1 285 8.0 1790 16 3243C 44.2 1475.9 528 14.7 1450 26 2922C 55.9 1487.0 893 25.0 1260 42 2695C 67.0	(1) COSTS ARE B (2) EMERGENCY S (3) EMERGENCY S (4) TABULAR DAT (5) ELEVATIONS CONSIDERED
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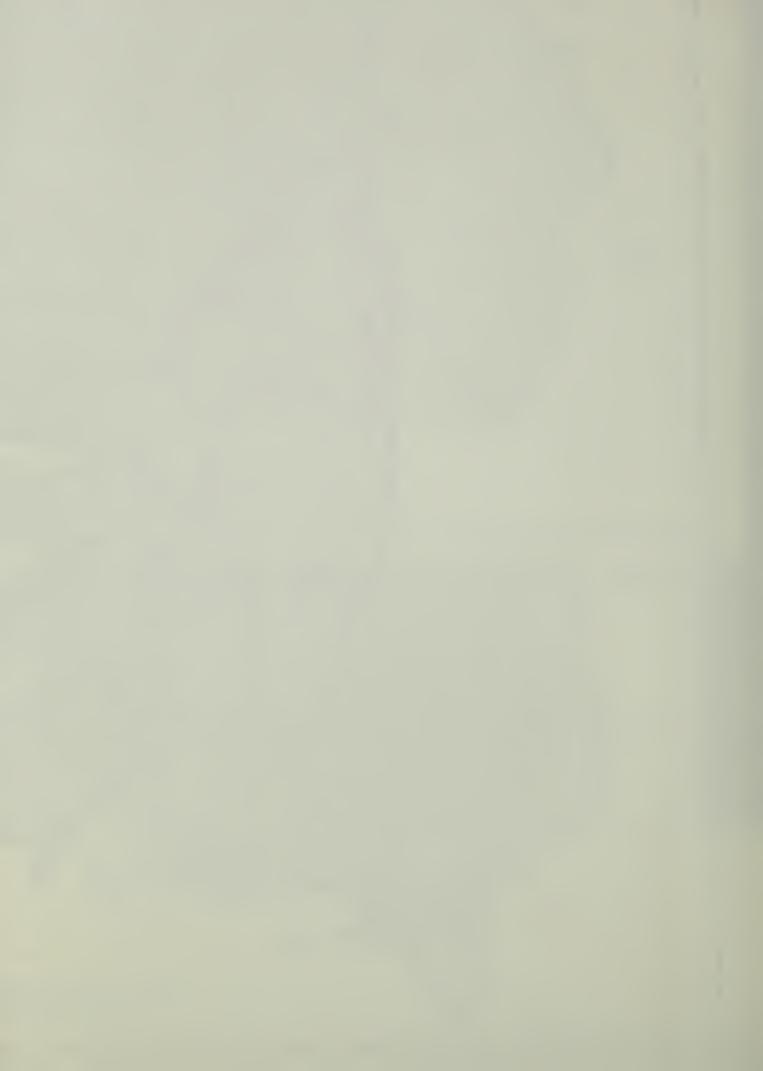
SUMMARY DATA FOR POTENTIAL UPSTREAM RESERVOIR SITES

ELEV STORAGE PER AREA SURF AT ** (MSL) AC FT IN (\$) (AC) (\$) (FT) ***********************************	COST	AREA SU	****	1	* *				HIGH WATER	*			***	* SAFE * YIELD
Z * 044W-	C FT (5) (A ***********************************		COST/ D SURF	DEPTH AT	i Ci iii	STORAGE AT CRES	STORAGE AT CREST	COST *		EA	* TOP * ELEV	HGT	FILL	PERC
0.0 0.0 0.4 4.4 12.3	* * * * * * * * * * * * * * * * * * *	(AC) (AC (\$)	DAM (FT)		AC FT	N	AC FT *	(MSL)	(AC)	* (MSL.)	FI	(1000 CY)	* (MGD)
0.0		4.70 SQ MI CEAM WATER Q	****** = 3C0 QUALITY	3C08 AC ITY (B)	****** USGS 100-YR	######################################	**************************************	SN STORM	**************************************	****** ATITUD F = 8	**************************************	1-34 L	LONGITUDE FLOW =]	******** E 72-53-57 1376 CFS
12.3		8	46510	9.1	* 1368.5	T 1040	1	1900 *	1380.4	77	* 1393.3 * 1359.0	3 68	462	* * * * * * * * * * * * * * * * * * * *
			2780c	45.4	* 1370.4	- -	. 4	1430 *	1385.3	83	# 1388.3			* 1.65
77	860 2	96 27 217 15	2791C 15750	70.6	* 1408.1 * 1412.5	E 4716 T 5569	6 18.7	570 * 610 *	1410.6	200	1414.4	.0 95	1206	* 2.92 * 3.76
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SITE RATING (1)	STREAM WATER	ATER (QUALITY (B)	(8)	100-YR	PRIN SPWY	WY DESIGN	SN STORM	RUNDF	8 =	I (C)	AK	FLOW =	
0.0		i	1	0.0	* 1415.8	E	15 5.0	730 *	1422.		* 1431			*
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13.0		•	712C		1430	w	- 1		i	225	# 1443.6			
5453 25.0	310 2	242 6	2869	40.3	* 1442.8 *	E 61	07 28.0	280	1447.6	265	* 1454.0	0 54	413	* 3.40
非非非常非常非常非常非常非常非常非常非常非常非常非常非常非常非常非常非常非常	DA= 0.60	************	*****	**************************************		**************************************	**************************************	****	******	*******	*****	42-40-52 LI	LONGITUDE	E 72-56-36
SITE RATING (2)	100	ATER (QUALITY (B)		1	PRIN SP	SPWY DESIGN	SN STORM	RUNDFF	8	.30 IN.	PEAK	FLOW =	186 CF
0.0		-		6.1	* 1312.1	i	13 4.1	2020 *	1317.3	12	# 1323	8 44	54	*****
4.6			34500	34.3	* 1316.8	E 183		1980 *	1323.6	16	* 1328.			* 0.21
258 8.1 475 14.7	1920	15 32	32910 26100	53.9	* 1325.1 * 1336.4			1630 #		30	* 1335.6 * 1345.3	3 65	103	* 0.30
21.6			25290	61.8		ں س	1	* 086	-		# 1352.6			* 0.48
* * * * * * * * * * * * * * * * * * * *	*****	7 10	年 * * * * * * * * * * * * * * * * * * *	***	÷ :	* *		****	*****		****	* * *	*	*
NC Y	SPILLWAY TYPE COEF C=CONCRETE	STOR	STORAGE AND COSTS ATTACK	C=CON	~	BASED ON CHUTE. D=(TOTAL	STORAGE,	INCLUDING BENEFICIAL E=EXCAVATED, T= TWO	NG BEN	T= TWO	POOL.	AYS. N=	NONE
TABULAR DATA ARE BASED ON PRELIMINARY INFORMATION. FIGURES ELEVATIONS ARE SHOWN TO THE NEAREST 0.1 FOOT TO SHOW VARIAT	TA ARE BASED ON PRELIMINA ARE SHOWN TO THE NEAREST	ASED (ON PREL	IMINA	RY INFORM 0.1 FOOT	MATION.	N. FIGURES SHO SHOW VARIATION	SHO	WN ARE PRIMARILY FOR COMPARISON BETWEEN DEVELOPMENTS ONLY, AND-	MARILY	FOR CI	OMPARISO	PL	JSES. NOT TO BE

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SAFE YIELD	*PERCENT *CHANCE	(MGD)	72-55-4 170 CFS	****	0.26	0.36	72-56-00	2926 CFS	0.73	1.70		72-59-34	2134 CFS	* * * * * * * * * * * * * * * * * * * *	1.30	2.62	NE S.
	FILL	* * *	TUDE =	63 * 91 *	113 *	180 *			138 *	299 #	* *	**************************************	W = 21	4 469	337 *	622 *	**************************************
DAM	HGT V	FT *****		42	53	62	******	PEAK FLOW = 2	65	85		* _	AK	104	80	100	OOL. ILLWAYS ARISON Y, AND
	TOP EL EV	* (MSL)	1	1342.0	1352.6	1362.0	******	.30 IN, P	695.0	715.4		**************************************	IN.	1839.1	1814.6	1835.1	**************************************
* *	* * *	(AC) *	UDE 8	9 * 1	16 * 1		**************************************	m	20 *	33 *	* *	**************************************	ന	74 #]		* 77	BENEF ED, T= RILY FO
DESIGN HIGH WATER	ELEV A	(MSL) (LAT	1339.5	1351.1	1360.0	*****	RUNDEF	690.4	710.5		****** LAT	RUNOFF	1824.8	1805.6	1830.0	**************************************
* DESIGN * HIGH WATER	T & +		STORM	2490 * 1 2200 * 1	1960 * 1 1680 * 1	* *	中央中央市场中央市场中央市场中央市场中央市场中央市场市场市场市场市场市场市场市场	STORM	3230 #	* *	* *	*	STORM	2070 * 1		2050 * 1 1200 * 1	A. BAGE, INCLU BAGE, INCLU BROP, E=EXC SHOWN ARE P
LWAY		N .	DESIGN			13.6 21	* * * * *	DESIGN	0.4 3			*****	DESIGN	4.1 20		9 6	**************************************
EMERGENCY SPILLWAY	STORAGE AT CREST	*	SPWY		250 8 354 12			1	253 0			**************************************	ļ.	1527 4		1950 5	CRITERIA AND COST DATA ARE BASED ON TOTAL STOR ETE CHUTE, D=CONCRETE DI INFORMATION, FIGURES S 1 FOOT TO SHOW VARIATION
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	+ CREST + ELEV TYPE		*	* 1337.0 * 1344.6	* *	* *	*	100-YR	* 682.4		* *	*********	100-YR	* 1812.5		* 1803.1 * 1819.1 *	TS ARE NCRETE ARY INF
	DEPTH AT	(FT)	352 AC TY (B)	7.8	46.2	57.5	*****	TY (B)	52.4	72.4		4416 AC	TY (B)	22.7	56.1	84.1	**************************************
	COST/ SURF	(\$)	SQ MI = 352 AC WATER QUALITY (B)	41440	37970 3560C	43800	* * * * * *	QUAL	56570	4340C		****** I I I	QUAL	031501	93696	33350	**************************************
30 L	AREA	(AC)	0.55 SQ MI	10	13					27		***********	AM WATER	5 71		70	**************************************
	ELEV STORAGE PER AREA SURF DAM		DA= 0.55 STREAM	2620	2310	2170	中华美国中华中华中华中华中华中华中华中华中华中华中华中华中华中华中华中华中华中华		5580	2110		**************************************	C.	12270	5020	1230	
BENEF	STORAGE	Z	(1)		7.1		****	(1)		0.8		***	(1)	0.0			**************************************
	STO	AC FT	TE-DE-1114 SITE RATING	166	213	396	*****	RATING	146			-1116	RATING	126	567	1895	(2) El (3) El (4) T ₍ (5) El (5) El (5)
*	ELEV	(MSL)	SITE-DE-1114 SITE RATING	1307.8	1346.1	357.5	**************************************	SITE	682.4	702.4		**************************************	SITE	1757.8	1791.1	1819.1	* * * * * * * * * * * * * * * * * * *





DEERFIELD STUDY AREA SITE DATA FOR

Subwatershed DE-12. Cold River

The Cold River Subwatershed covers about 20.300 acres in Charlemont and Hawley, in Franklin County and Adams. Florida, Monroe, North Adams and Savey in Berkshire County.

The Cold River originates in Florida and flows southeasterly and easterly to its confluence with the Deerfield River in Charlemont. Elevations range from 2,871 feet on Crum Hill in Florida to about 600 feet at the confluence.

Florida, Savoy Mountain and Mohawk Trail State Forests comprise the majority of the subwatershed area.

Geology within the subwatershed is predominantly characterized by gneiss bedrock overlain by 5 to 20 feet of glacial till or englacial drift.

Thirteen potential reservoir sites and two existing reservoirs were studied.

SITE DE-1201

Location:

On the Cold River about 400 feet upstream from the Hoosic Tunnel in Florida, Massachusetts.

North Adams, Massachusetts U.S.G.S. Quadrangle Latitude: 42°40'35" Longitude: 73°02'10"

Facilities Affected:

None below elevation 1725.

Geologic Conditions:

The right abutment is englacial drift, shallow to gneiss bedrock. The left abutment is glacial till underlain by gneiss bedrock. Surficial deposits are gneiss bedrock, glacial till and englacial drift. The bedrock is moderately fractured in outcrops. Streambed material is boulders. Depth to bedrock in the foundation is estimated to be from 5 to 10 feet. Waterholding capabilities appear to be good. Borrow material for dam construction was located near the site.

Engineering Notes:

The left abutment is recommended for the emergency spillway location. The dam site is just north of the Hoosic Tunnel; the foundation for the dam should be thoroughly explored to evaluate the effect impounded water might have on the Tunnel.

Location:

On Tower Brook about 1100 feet upstream from Savoy Road in Florida, Massachusetts.

North Adams, Massachusetts U.S.G.S. Quadrangle

Latitude:

42°3913811

Longitude: 73⁰02'34"

Facilities Affected:

Facilities House House

1750 1700

Elevation

Poirot Road

on centerline

Geologic Conditions:

Both abutments are thin englacial drift underlain by gneiss bedrock. The bedrock is moderately fractured in outcrops. Streambed material is boulders. Depth to bedrock in the foundation is estimated to be from 5 to 10 feet. Bedrock outcrops downstream of the site. Waterholding capabilities appear to be good. Borrow material for dam construction was located near the site.

Engineering Notes:

The left abutment is recommended for the emergency spillway location. Because of anticipated rock excavation and boulders from the borrow area, an effort should be made to incorporate this material in the structure design.

Public Ownership: Below elevation 1,780 feet, approximately 10 acres lies within the Florida State Forest.

SITE DE-1203

Location:

On Bog Brook about 50 feet upstream from New State Road in Savoy, Massachusetts.

North Adams, Massachusetts U.S.G.S. Quadrangle

Latitude:

42°38125"

Longitude: 73°02'01"

Facilities Affected:

Facilities Elevation Florida Road 1910 Electric lines 1910 1880 House Electric lines (2 wires) 1860 1860 New State Road

Geologic Conditions:

Both abutments are dense glacial till, with the possibility of thin outwash gravel at the surface. Depth to bedrock in the foundation is estimated to be from 10 to 15 feet. Waterholding capabilities appear to be good. Borrow material for dam construction was located near the site.

Engineering Notes:

This is Site M4B-1 that was included in the Comprehensive Study of the Connecticut River Basin, U.S. Department of Agriculture. June 1970.

SITE DE-1203 (Cont'd)

Engineering Notes:

See Site DE-12B for data on the existing dam. The right abutment is recommended for the emergency spill-way location.

Public Ownership:

Below elevation 1900 feet, the entire pool area lies within the Savoy Mountain State Forest.

SITE DE-1204

Location:

On Gulf Brook about 250 feet downstream from New State Road in Savoy, Massachusetts.

North Adams and Windsor Massachusetts U.S.G.S. Quadrangles

Latitude: 42°37'29" Longitude: 73°01'55"

Facilities Affected:

FacilitiesElevationBurnett Road1880Electric line1880New State Road1857Electric line1857

Geologic Conditions:

The left abutment is englacial drift with possibly a thin outwash of gravel at the surface. The right abutment is a glacial till. The surficial deposits are gneiss bedrock, englacial drift, outwash sand and gravel and glacial till. Bedrock is moderately fractured in outcrops. Streambed materials are cobbles and boulders. Depth to bedrock in the foundation is estimated to be from 5 to 15 feet. Waterholding capabilities appear to be fair; there is a possibility of leakage through the left abutment. Borrow material for dam construction was located near the site.

Engineering Notes:

The right abutment is recommended for the emergency spillway location. Waterholding capabilities might be improved by a cutoff through the gravel on the left abutment.

Public Ownership:

Below elevation 1,940 feet, approximately 3/4 of the reservoir area lies within the Savoy Mountain State Forest.

Location:

On Gulf Brook about 100 feet downstream from the outlet of Burnett Pond, in Savoy, Massachusetts.

Windsor, Massachusetts U S.G.S. Quadrangle

Latitude: 42°37'04" Longitude: 73°02'36"

Facilities Affected:

Burnett Pond Dam

Geologic Conditions: The left abutment is thin englacial drift underlain by gneiss bedrock. The right abutment is glacial till. Surficial deposits are gneiss bedrock, englacial drift and glacial till. Bedrock is only slightly fractured in outcrops. Streambed material is cobbles. Depth to bedrock in the foundation is not known but there are gneiss bedrock outcrops on the left abutment about 50 feet downstream of the site. Waterholding capabilities appear to be good. Borrow material for dam construction was located near the site.

Engineering Notes:

See Site DE-12A for data on the existing dam. The right abutment is recommended for the emergency spillway location. If the site is developed to elevation 1,975 feet a dike will be required to the northwest of the reservoir.

Public Ownership:

Below elevation 1,980 feet, approximately 90% of the site lies within the Savoy Mountain State Forest.

SITE DE-1206

Location:

At the outlet of Tyler Pond, 200 feet upstream from Florida Road in Savoy, Massachusetts

North Adams. Massachusetts U.S.G.S. Quadrangle Latitude: 42°38'19" Longitude: 73°02'45"

Facilities Affected:

None below elevation 1250.

Geologic Conditions: Both abutments are thin discontinuous englacial drift underlain by gneiss bedrock with a possibility that the right abutment is glacial till. Bedrock is moderately fractured in outcrops. Streambed materials are cobbles and boulders. Depth to bedrock in the foundation is estimated to be from 15 to 20 feet. Waterholding capabilities appear to be good. Borrow material for dam construction was located near the site.

Engineering Notes:

The right abutment is recommended for the emergency spillway location. If the site is developed to elevation 1,950 feet, a dike will be required to the northwest of the reservoir.

Public Ownership:

Below elevation 1,960 feet, the entire pool area lies within the Savoy Mountain State Forest.

Location:

On Tower Brook at Shaft Road in Florida, Massachusetts.

North Adams, Massachusetts U.S.G.S. Quadrangle Latitude: 42°39'27" Longitude: 73°03'22"

Facilities Affected:

Facilities Elevation 7 wire power line 1915

(steel towers)

3 wire power line 1875 3 wire utility on Shaft Road 1865

Shaft Road 1865(on dam centerline)

Geologic Conditions: Both abutments are englacial drift with many large boulders. Surficial deposits are englacial drift and gneiss bedrock. The bedrock is moderately fractured in outcrops. Streambed material is boulders. Depth to bedrock in the foundation is estimated to be from 5 to 10 feet. Waterholding capabilities are fair; there may be leakage through both abutments. Borrow material for dam construction was located near the site.

Engineering Notes:

The left abutment is recommended for the emergency spillway location.

Public Ownership:

Below elevation 1,980 feet, approximately 90% of the reservoir area lies within the Florida State Forest.

SITE DE-1208

Location:

On Ross Brook about 100 feet downstream from Tannery Road in Savoy, Massachusetts.

Windsor, Massachusetts U.S.G.S. Quadrangle

Latitude: 42°37'19" Longitude: 73°00'23"

Facilities Affected:

FacilitiesElevationTannery Pond1530Tannery Road1525

Geologic Conditions: Both abutments are glacial till. Surficial deposits are glacial till and swamp. Streambed material is cobbles. Depth to bedrock in the foundation is estimated to be from 15 to 20 feet. Waterholding capabilities appear to be good. Borrow material for dam construction was located near the site.

Engineering Notes:

The left abutment is recommended for the emergency spillway location.

Public Ownership:

The entire site lies within the Savoy Mountain State Forest.

Location:

On Gulf Brook about 700 feet upstream, from New State

Road in Savoy, Massachusetts.

Windsor, Massachusetts U.S.G.S. Quadrangle

Latitude: 42°37'25" Longitude: 73°02'08"

Facilities Affected:

Facilities Elevation 1940 Burnett Road 1885 2 wire utility 1885 New State Road

Geologic Conditions: The left abutment is englacial drift or till with thin gravel at the surface. The right abutment is glacial till. Surficial deposits are englacial drift, glacial till, outwash sand and gravel, and gneiss bedrock. Bedrock is only slightly fractured in outcrops. Streambed materials are cobbles and boulders. Depth to bedrock in the foundation is estimated to be from 5 to 15 feet. Waterholding capabilities appear to be good; but there could be leakage through the left abutment. Borrow material for dam construction was located near the site.

Engineering Notes:

The right abutment is recommended for the emergency spillway location. Waterholding capabilities might be improved by a cutoff through the gravel on the left abutment.

Public Ownership: Below elevation 1,960 feet, approximately 3/4 of the site lies within the Savoy Mountain State Forest.

SITE DE-1210

Location:

On Black Brook at Brier Road in Savoy, Massachusetts.

Plainfield Massachusetts U.S.G.S. Quadrangle Latitude: 42°36'22" Longitude: 72°58'59"

Facilities Affected:

Flevation Facilities House and 2 barns 1630 1575 4 wire utility Brier Road 1575

Geologic Conditions:

Both abutments are glacial till underlain by gneiss bedrock. Surficial deposits are glacial till and gneiss bedrock. The bedrock is moderately fractured in outcrops. Streambed material is cobbles. Depth to bedrock in the foundation is estimated to be from 15 to 20 feet. Waterholding capabilities appear to be good. Borrow material for dam construction was located near the site.

Engineering Notes:

The left abutment is recommended for the emergency spillway location.

Location:

On the Cold River about 300 feet upstream from Manning Brook near Mohawk Trail (Rte. 2) in Savoy, Massachusetts.

Rowe, Massachusetts U.S.G.S. Quadrangle

Latitude: 42°38'14" Longitude: 72°59'10"

Facilities Affected:

None below elevation 1190.

Geologic Conditions:

Both of the abutments; the valley floor and the surficial deposits are gneiss bedrock. The bedrock is moderately fractured in rock outcrops. Streambed material is boulders. Waterholding capabilities appear to be good. Borrow material for dam construction was not located near the site. A concrete dam or an earth-fill dam with a concrete chute emergency spill-way would be most appropriate for this site.

Public Ownership:

Below elevation 1,200 feet, the entire site lies within the Savoy Mountain State Forest.

SITE DE-1212

Location:

On the Cold River about 8,000 feet downstream, from South County Road in Florida, Massachusetts.

North Adams, Massachusetts U.S.G.S. Quadrangle Latitude: 42°39'12" Longitude: 73°00'57"

Facilities Affected:

None below elevation 1430.

Geologic Conditions:

Both abutments are gneiss bedrock with a thin cover of englacial drift. Surficial deposits are englacial drift, and gneiss bedrock. Bedrock is moderately fractured. There are many rock outcroppings in the foundation. Streambed materials are cobbles and boulders. Borrow material for dam construction was not located at the site.

Engineering Notes:

A concrete chute spillway may be needed at this site.

Public Ownership: Below elevation 1,460 feet, the entire reservoir lies within the Florida State Forest.

Location:

On Black Brook at an unnamed road. The road connects Black Brook Road and Brier Road, in Savoy, Massachusetts.

Plainfield, Massachusetts U.S.G.S. Quadrangle

Latitude: 42°36'51"

Longitude: 72°58'48"

Facilities Affected:

Facilities
4 wire utilities
Brier Road

Elevation 1575 15h0

Geologic Conditions: Both abutments are glacial till; shallow to bedrock. Surficial deposits are glacial till and gneiss bedrock. The bedrock is moderately fractured in outcrops. Streambed material is cobbles. Depth to bedrock in the foundation is estimated to be from 15 to 25 feet. Waterholding capabilities appear to be good. Borrow material for dam construction was located near the site.

Engineering Notes:

This is Site M4B-2 that was included in the Comprehensive Study of the Connecticut River Basin, U.S. Dept. of Agriculture, June 1970. The left abutment is recommended for the emergency spillway location.

Public Ownership:

Below elevation 1,620 feet, approximately 10 acres lie within the Savoy Mountain State Forest.

SITE DE-12A (Burnett Pond)

Location:

On Gulf Brook approximately 3,900 feet upstream from New State Road, Savoy, Massachusetts.

Windsor Massachusetts Quadrangle

Surface	Surface Area	Height of	Draina	ge Area
Elevation	(Acres)	Dam (Ft.)	Acres	Sq. Mi.
1951	17	18	400	0.6

Potential for Expansion:

See Site Data and Design Summary Table for Site DE-1205.

Remarks:

This is a 300 foot long earth dam with a 30 foot concrete weir spillway with a maximum head of 7 feet. There is rock rip-rap on the upstream side of the dam and at the outlet of the concrete spillway. A gated pipe is used to drain the pond. The top of the dam and the upstream side are well maintained. The downstream side is covered with trees and brush. The concrete has a few cracks.

Ownership and Use:

The reservoir is owned by the Massachusetts Department of Natural Resources and is used for Recreation.



SITE DE-12B (Bog Pond)

Location:

On Bog Brook approximately 200 feet upstream from New State Road in Savoy, Massachusetts.

North Adams, Massachusetts-Vermont Quadrangle

Surface
Elevation
1858

Surface Area (Acres)
39

Height	of
Dam (F	rt.)
15	

Draina	ge A	rea
Acres	Sq.	Mî.
872		26

Potential for Expansion:

See Site Data and Summary Design Table for Site DE-1203.

Remarks:

The dam is an earth structure about 150 feet long. The spillway is a stone masonry ogee weir about 20 feet long with 5 feet of head above the flash-boards. There is rock rip-rap on the upstream side of the dam. There is some erosion on the upstream face of the dam. The structure was built in 1937 by the Civilian Conservation Corps.

Ownership and Use:

The reservoir is owned by the Massachusetts
Department of Natural Resources and is used for
recreation.

EXISTING SITE DE-12B (Bog Pond)





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SITE-DE-1201 SITE RATIN	-1201 RATING (3	DA= 4. STREA	4.66 SQ MI EAM WATER	= 4.66 SQ MI = 2982 AC STREAM WATER QUALITY (B)	2982 AC ITY (B)	2		QUAD-NORTH ADAMS	NORTH ADAMS SPWY DESIGN	1S SN STORM	M RUN	LATI RUNOFF =	TUDE 8.3	LATITUDE 42-40-35 FF = 8.30 IN, PE	35 LONGI PEAK FLOW	LONGITUDE FLOW =	73-02-1 1442 CFS)2-1 CFS
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1666.1	133	0.5	5470	12	59360	31.0	* 166 * 169	1668.6 E	202	0.8	3600	* 1678.6 * 1701.8	9.6	19 *	1684.8	50	159	* *	0.46
1710.5	1381	\ \ \ \ \ \ \ \ \ \ \ \ \ \ \ \ \ \ \	1470	49	41260	75.5	* 171 * 172	1	1543	6.1	1320	* 1723.1 * 1730.8		* *	1729.8	95	795	* 1.	.85
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1862.3	493	6.8	750	51	7220	12.3	* 186	- 1		10.3	490	* 1869.3		*	1871.6	22	20	*	0.61
18/1-1	1021	21.4	210	87	7880	27.7	* 187 * 188	18/3.6 E	1219	16.1	380	* 1876.0 * 1882.6		83 *	1878-1	28	* «	* *	0.90
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SUMMARY DATA FOR POTENTIAL UPSTREAM RESERVOIR SITES

STORAGE COST AT CREST STORAGE COST COST COST CREST		BENEF	BENEFICIAL POOL	OL	BENEFICIAL POOL		EMER	EMERGENCY SP	LWAY		DESIGN HIGH WATER	GN		DAM		SAFE YIELD
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194 7.6 790 29 5310 13.7 * 1936.1 E 278 10.8 550 * 1938.3 39 * 1940.6 21 14 * 0.2 3	-0		1060	21	5240	10-1	932	1	9-9	660	1934.8		1 1		7	0.16
372 14.6 560 40 5210 18.7 * 1941.3 E 482 18.7 430 * 1946.6 53 * 1948.6 29 31 * 0.3 530 20.7 480 46 5440 22.5 * 1945.0 E 655 25.6 390 * 1946.6 53 * 1948.6 29 31 * 0.3 ***********************************			790	29	5310	13.7	1936.1	278	10.8	550	* 1938.3		1940.6		14	0.23
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**************************************			480	46	5440	22.5	1945.0	655	25.6	390	1946.6		1948.6		31	0.37
- (1) COSTS ARE BASED ON 1971 S.C.S. DESIGN CRITERIA AND COST DATA. (2) EMERGENCY SPILLWAY STORAGE AND COSTS ARE BASED ON TOTAL STORAGE, INCLUDING BENEFICIAL POOL. (3) EMERGENCY SPILLWAY TYPE CODE— C=CONCRETE CHUTE, D=CONCRETE DROP, E=EXCAVATED, T= TWO SPILLWAYS, N= NONE (4) TABULAR DATA ARE BASED ON PRELIMINARY INFORMATION. FIGURES SHOWN ARE PRIMARILY FOR COMPARISON PURPOSES. (5) ELEVATIONS ARE SHOWN TO THE NEAREST O.1 FCOT TO SHOW VARIATION BETWEEN DEVELOPMENTS ONLY, AND ARE NOT TO	****	* * * *	* * * *	*	* * *	*	****	***	*	*	***	***	*	*	*	***
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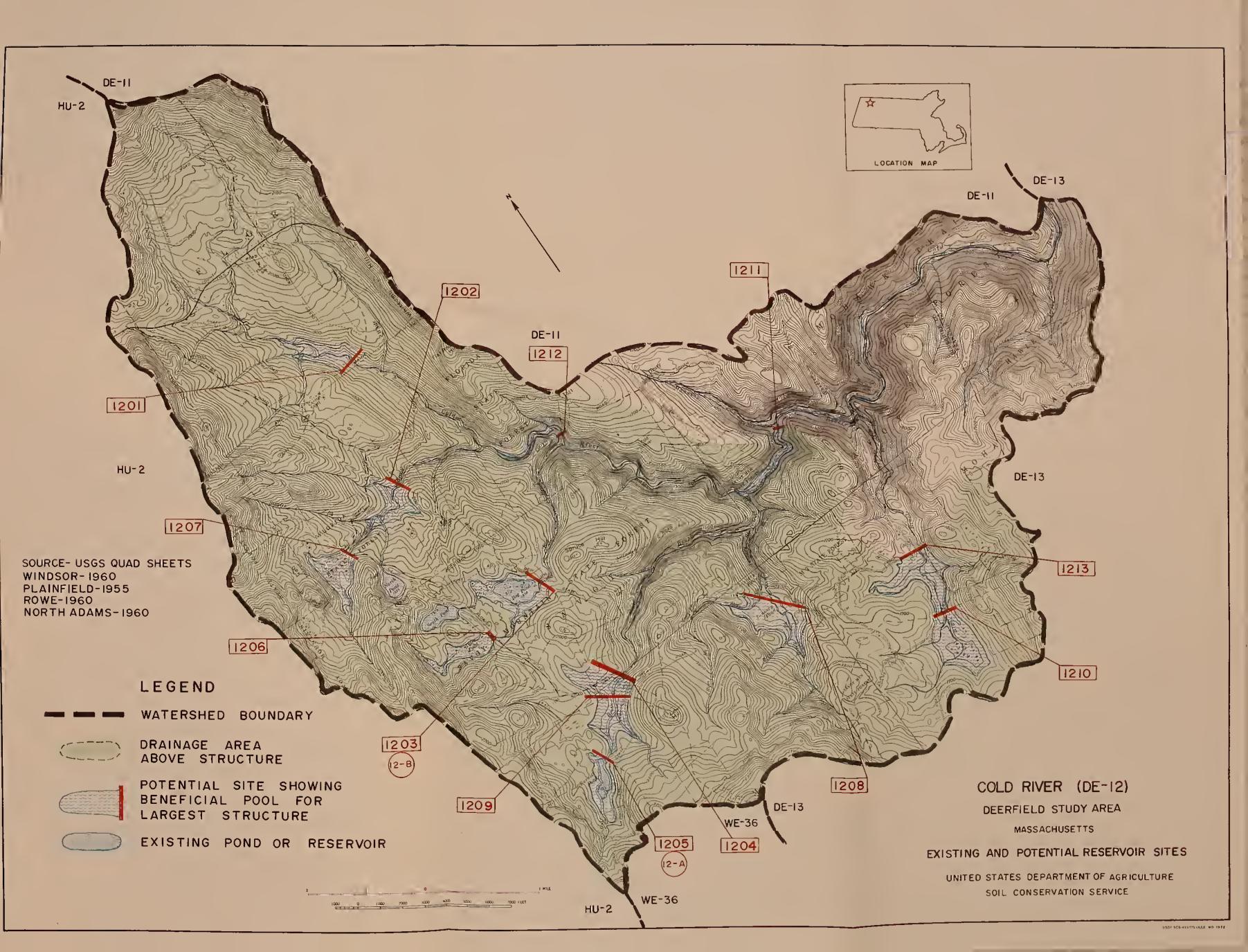
SUBMATERSHED-COLD RIVER STUCY AREA-DEERFIELC RIVER	EMERGENCY SPILLWAY * DESIGN * DAM * SAF * HIGH WATER *	**************************************	(MSL) AC FT IN (\$) * (MSL)	**************************************	0 0.0 4 2.0 * 1880.3 E 299 4.1 490 * 1882.8 37 * 1885.8 23 17 * *	248 3.4 860 32 6730 16.2 * 1885.8 E 508 7.1 765 10.6 460 50 6950 28.7 * 1894.1 E 904 12.6	1283 17.7 390 64 7930 37.8 * 1903.3 E 1464 20.2 340 * 1905.6 70 * 1908.1 45 98 * 1800 25.0 340 78 80 * 1915.8 53 152 *		DA TE 2.41 SQ MI = 1542 AC USGS QUAD-WINDSOR	* * * * * * * * * * * * * * * * * * *	109 0.8 5100 24 2365C 10.7 * 1532.6 T 1.0 4340 * 1543.6 47 * 1546.5 24 84 *	1661 12.8 860 81 17680 39.7 # 1568.1 E 2221 17.2 640 # 1570.6 89 # 1573.1 51 523 # 1	2696 21.0 (10 92 2089C 51.8 # 1580.3 E 5530 25.9 570 # 1582.6 103 # 1585.5 3213 25.0 650 97 2166C 57.3 # 1583.8 E 3694 28.7 570 # 1586.1 110 # 1588.5	#本本本本本本本本本本本本本本本本本本本本本本本本本本本本本本本本本本本本	KALING (I) SIKEAM WAIER COALIT (B) 100-TK PRIN SPWT DESIGN SIUKM RONUTT = 6.50 IN. PEAR TLUM = 6.1	0 0.0 0.0 3 11.0 * 1907.0 E 617 5.3 1150 * 1909.3 45 * 1912.6	571 4.9 1770 39 2625C 46.2 * 1916.6 E 1092 9.3 930 * 1919.1 64 * 1921.8 62 318 *	1500 13.0 950 76 1891C 63.0 + 1929.5 E 2074 17.9 690 + 1931.8 107 + 2893 25.0 600 125 13910 76.9 + 1939.3 E 3228 27.9 560 + 1961.8 148 +	## 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1	NOTES - (1) COSTS ARE BASED ON 1971 S.C.S. DESIGN CRITERIA AND COST DATA. (2) EMERGENCY SPILLWAY STORAGE AND COSTS ARE BASED ON TOTAL STORAGE, INCLUDING BENEFICIAL POOL.	- C-CONCRETE CHUTE, D-CONCRETE DROP, E-EXCAVATE ELIMINARY INFORMATION. FIGURES SHOWN ARE PRIMAR	ETWEEN DEVELOPMENT	** DO NOT USE FOR FINAL SITE SELECTION OR LAND ACQUISITION. **
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SUMMARY DATA FOR POTENTIAL UPSTREAM RESERVOIR SITES

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DEERFIELD STUDY AREA SITE DATA FOR

Subwatershed DE-13, Chickley River

The Chickley River Subwatershed covers 45,400 acres in Plainfield, Hawley, Buckland, Charlemont, Rowe, Heath, and Colrain, in Franklin County, and Savoy, in Berkshire County.

The subwatershed is divided by the easterly flowing Deerfield River. Major streams are the Chickley River which originates in Savoy and flows northeasterly to its confluence with the Deerfield River, and Mill Brook which originates in Heath and flows southerly to the Deerfield River. Elevations range from about 2,450 feet on Borden Mountain in Savoy to about 490 feet in East Charlemont.

There is a U.S.G.S. stream gage on the Deerfield River east of Charlemont.

Geology within the subwatershed is predominantly characterized by schist bedrock overlain by 15 to 25 feet of glacial till or englacial drift. Ten potential reservoir sites and two reservoirs were studied.

SITE DE-1301

Location:

On Davis Mine Brook about 9,700 feet upstream from the confluence with Mill Brook in Rowe, Massachusetts.

Heath, Massachusetts U.S.G.S. Quadrangle

Latitude: 42°40'57" Longitude: 72°51'41"

Facilities Affected:

None below elevation 1365.

Geclogic Conditions:

Both abutments are thin discontinuous englacial drift underlain by schist bedrock. The bedrock is highly fractured and weathered. At the dam site there is schist bedrock at the surface. Streambed material is boulders. Waterholding capabilities appear poor to fair with leakage expected through the weathered bedrock. Borrow material for dam construction was located near the site.

Engineering Notes:

The right abutment is recommended for the emergency spillway location. More detailed mapping of the dam site may reveal that the dam should be moved upstream to get away from mine workings.

Location:

On Davis Mine Brook about 13,500 feet upstream from the confluence with Mill Brook in Rowe, Massachusetts.

Heath, Massachusetts U.S.G.S. Quadrangle

Latitude: 42°41'31" Longitude: 72°51'52"

Facilities Affected:

None below elevation 1460.

Geologic Conditions: Both abutments are thin englacial drift underlain by schist bedrock. Surficial deposits are englacial drift and schist bedrock. The bedrock is highly fractured in outcrops. Streambed material is boulders. Depth to bedrock in the foundation is estimated to be from 5 to 15 feet. Waterholding capabilities appear poor to fair with leakage expected through the fractured bedrock. Borrow material for dam construction was located near the site.

Engineering Notes:

The right abutment is recommended for the emergency spillway location.

SITE DE-1303

Location:

On Brown Brook about 3,000 feet downstream from Barnard Road in Savoy, Massachusetts.

Plainfield, Massachusetts U.S.G.S. Quadrangle

Latitude: 42°35'02" Longitude: 72°58'41"

Facilities Affected:

None below elevation 1535.

Geologic Conditions: Both abutments are thin discontinuous glacial till underlain by schist bedrock. The surficial deposits are glacial till and schist bedrock. The bedrock is highly fractured in outcrops. Streambed material is cobbles. Depth to bedrock in the foundation is estimated to be 5 to 15 feet. Waterholding capabilities appear poor to fair with leakage expected through the fractured bedrock. Borrow material for dam construction was located near the site.

Engineering Notes:

The right abutment is recommended for the emergency spillway location.

Public Ownership:

Below elevation 1,540 feet, approximately one third of the site lies within the Savoy State Forest.

Location:

On Chickley River about 700 feet upstream from West Hawley Road in Hawley, Massachusetts.

Plainfield, Massachusetts U.S.G.S. Quadrangle

Latitude: 42°34'37" Longitude: 72°57'00"

Facilities Affected:

Facilities Elevation
Barn & House 1150
Savoy Road 1090
Portable Saw Mill 1090
Electric line (3 wires) 1090

Geologic Conditions: Both abutments are thin discontinuous outcrops of englacial drift underlain by gneiss bedrock. Surficial deposits are englacial drift and gneiss bedrock. There are gneiss outcrops in the foundation area. Streambed material is boulders. Waterholding capabilities appear to be fair. Borrow material for dam construction was located near the site.

Engineering Notes:

Preliminary structure designs indicate that a concrete emergency spillway (monolithic conduit or chute structure) will be needed at this site.

SITE DE-1305

Location:

On Bozrah Brook about 200 feet downstream from East Road in Hawley, Massachusetts.

Plainfield, Massachusetts U.S.G.S. Quadrangle

Latitude: 42°36'33" Longitude: 72°53'08"

Facilities Affected:

Facilities Elevation
House & barn 830
House 830
2 houses 810
2 wire electric & telephone
line 795
East Road 795

Geologic Conditions: Both abutments and the surficial deposits are glacial till. Streambed materials are cobbles and boulders. Depth to bedrock in the foundation is estimated to be from 5 to 15 feet. Waterholding capabilities appear to be good. Borrow material for dam construction was located near the site.

Engineering Notes:

Preliminary structure designs indicate that a concrete chute spillway will probably be required at this site.

Location:

On East Oxbow Brook at East Oxbow Road in Charlemont,

Massachusetts.

Heath, Massachusetts U.S.G.S. Quadrangle

Latitude: 42°38'00" Longitude: 72°46'59"

Facilities Affected:

Elevation Facilities 735 House East Oxbow Road 720 Telephone line 720

Geologic Conditions:

Both abutments are thin discontinuous outcrops of englacial drift underlain by schist bedrock. The surficial deposits are englacial drift and schist bedrock. The bedrock is highly fractured in outcrops. Fractures are from 6 to 24 inches apart. Streambed material is cobbles. Depth to bedrock in the foundation is estimated to be from 5 to 10 feet. Waterholding capabilities appear to be poor to fair with leakage expected through the fractured bedrock. Borrow material for dam construction was located near the site.

Engineering Notes:

The right abutment is recommended for the emergency spillway location.

SITE DE-1307

Location:

On Basin Brook about 6,400 feet upstream from the confluence with King Brook in Hawley, Massachusetts.

Plainfield, Massachusetts U.S.G.S. Quadrangle Latitude: 42°33'58" Longitude: 72°55'43"

Facilities Affected:

None below elevation 1495.

Geologic Conditions:

Both abutments are englacial drift with numerous outcrops of schist bedrock. The surficial deposits are englacial drift and schist bedrock. The bedrock is highly fractured in outcrops. Streambed material is cobbles. Depth to bedrock in the foundation is estimated to be from 5 to 15 feet. Waterholding capabilities appear to be poor to fair with leakage expected through the fractured bedrock. Borrow material for dam construction was located near the site.

Engineering Notes:

The right abutment is recommended for the emergency spillway location.

Public Ownership:

Below elevation 1,500 feet, the entire site lies within the Hawley State Forest.

Location:

At the outlet of Hallockville Pond on King Brook in Hawley, Massachusetts.

Plainfield, Massachusetts U.S.G.S. Quadrangle

Latitude: 42°33'05" Longitude: 72°56'32"

Facilities Affected:

Facilities Elevation
Route 8A 1610
Electric line (1 wire) 1610

Camp (4 bldgs., state owned) on centerline

Geologic Conditions: Both abutments are glacial till, shallow to either schist or granite bedrock. The surficial deposits are schist and granite bedrock and glacial till. Streambed material is cobbles. Depth to bedrock in the foundation is estimated to be from 10 to 15 feet. Waterholding capabilities appear to be good. Borrow material for dam construction was located near the site.

Engineering Notes:

The left abutment is recommended for the emergency spillway location. See Site DE-13B for data on the existing dam at this site.

Public Ownership: Below elevation 1,660 feet, the entire site lies within the Savoy State Forest.

SITE DE-1309

Location:

On Mill Brook about 800 feet upstream from Hunt Road in Hawley, Massachusetts.

Plainfield, Massachusetts U.S.G.S. Quadrangle Latitude: 42°33'39" Longitude: 72°54'08"

Facilities Affected:

Facilities Middle Road Elevation 1615

Geologic Conditions:

Both abutments are englacial drift, shallow to schist bedrock. Surficial deposits are englacial drift and bedrock. The bedrock is highly fractured in outcrops. Streambed material is cobbles. Depth to bedrock in the foundation is estimated to be from 5 to 15 feet. Waterholding capabilities appear to be poor to fair with leakage expected through the fractured bedrock. Borrow material for dam construction was located near the site.

Engineering Notes:

The emergency spillway could be placed on the right abutment or in a topographic saddle about 1,000 feet south of the centerline.

Public Ownership:

Below elevation 1,640 feet approximately 3/4 of the site lies within the Hawley State Forest.

Location:

On Legate Hill Brook about 10,800 feet upstream from

Patoy Brook in Charlemont, Massachusetts.

Rowe, Massachusetts U.S.G.S. Quadrangle

Latitude: 42°39'40" Longitude: 72°54'34"

Facilities Affected:

None below elevation 1335.

Geologic Conditions: Both abutments are englacial drift; shallow to schist bedrock. The surficial deposits are englacial drift and schist bedrock. Streambed material is cobbles. Depth to bedrock in the foundation is estimated to be from 5 to 10 feet. Waterholding capabilities appear to be good. Borrow material for dam construction was located near the site.

Engineering Notes:

The right abutment is recommended for the emergency

spillway location.

SITE DE-13A J.A. Wells Upper Dam

Location:

On Mill Brook approximately 50 feet upstream from North Heath Road in Charlemont, Massachusetts.

Heath, Massachusetts-Vermont Quadrangle

Surface	Surface Area	Height of	Drain	age Area
Elevation	(Acres)	Dam (Ft.)	Acres	Sq. Mi.
745	1	18	7559	11.81

Potential for Expansion:

Severely limited by the steep terrain.

Remarks:

This is a 90 foot long masonry dam with a 60 foot weir, having a maximum head of 3 feet. The dam is constructed on ledge. A gated outlet is located at the left end of the dam. Brush is growing between the stones at both ends of the dam. The reservoir is practically filled with silt.

Ownership and Use:

The reservoir is owned by Frank Wells, Charlemont, Massachusetts, and is used for water supply.



SITE DE-13B Reverend Dumphey Dam (Hallockville Pond)

Location:

On King Brook near the Hawley-Plainfield town line in Hawley, Massachusetts.

Plainfield Massachusetts Quadrangle

Surface Elevation	Surface Area (Acres)	Height of Dam (Ft.)	Drainage Acres So	
1605	16	15	1017	1.59
Potential	See Site Data	and Design	Summary Table	for Site

Potential for Expansion:

See Site Data and Design Summary Table for Site DE-1308.

Remarks:

This is a stone dam with a concrete wall on the upstream side. Outlet is a 3 foot weir with a chute to handle small flows. The top acts as a weir to pass large flows. Stop logs have been placed at the chute entrance to raise the water level. There are two stone walls on the downstream side to confine the water to the channel. Some stones have fallen into the channel. The reservoir has collected some silt.

Ownership and Use:

The reservoir is owned by the Massachusetts Department of Natural Resources and is used for recreation.



SUMMARY DATA FOR POTENTIAL UPSTREAM RESERVOIR SITES

**CREST STORAGE COST ** ** CREST STORAGE COST ** ** FLEV AT CREST PER ** ELEV AREA ** ** FLEV AC FT ** ** LAC FT IN (\$) ** (MSL) (AC) (AC) ** (MSL) (AC)	ŀ	ENEF	BENEFICIAL POOL	75		BENEFICIAL POOL	* EME	EMERGENCY	Y SPILLWAY	WAY	* *	DESIGN HIGH WATER	TER.	* *	DAM		
## (MSL) AC FT IN (\$) # (MSL) (AC) # (MSL) FT (Y) # (MSL) USGS QUAD-HEATH LATITUDE 42-40-57 LONGITUDE 72 100-YR PRIN SPWY DESIGN STORM RUNOFF = 8.30 IN, PEAK FLOM = 49 # 1352.8 E 688 B.1 900 # 1355.1 40 # 1357.5 58 155 # 1365.9 E 810 9.5 860 # 1358.4 43 # 1360.6 61 184 # 1362.5 T 1098 12.8 1010 # 1365.1 52 # 1369.1 69 279 # 1362.5 T 1098 12.8 1010 # 1367.4 52 # 1369.6 61 184 # 1362.5 T 1098 12.8 1010 # 1367.4 52 # 1369.6 61 184 # 1362.5 T 1098 12.8 1010 # 1367.4 52 # 1369.6 61 184 # 1362.5 T 1098 12.8 1010 # 1367.4 52 # 1369.1 69 279 # 1362.5 T 1098 12.8 1010 # 1367.4 52 # 1369.1 69 279 # 1461.6 E 620 20.0 1310 # 1454.0 26 # 1456.0 68 255 # 1461.0 E 880 27.5 1180 # 1462.4 31 # 1464.9 T7 356 # 1460.0 E 850 27.5 1180 # 1462.4 31 # 1464.9 T7 356 # 1460.0 E 850 27.5 1180 # 1462.4 31 # 1464.9 T7 356 # 1465.0 E 86 6 40 3 10.1 PEAK FLOM = 25 # 1495.0 E 86 6 6 6 6 6 6 6 6 6 6 6 6 6 6 6 6 6		*	COST	* * * * *	**************************************	****** OEPTH	****** * CREST	*****	ORAGE	**************************************	*	*****	* * * *	***** * TOP * E1 EV	*	*	* PERCE
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USGS QUAD-HEATH USGS QUAD-HEATH ** 1344.3 E		Z	(\$)	(AC)	(\$)	(FT)	# (MSF)	AC	FT IN	(\$)	*	(MSL)	(AC)	* (MSF) FT	CX)	* (MG
# 1344.3 E 406 4.8 1080 # 1346.8 31 IN, PEAK FLOW = 49 # 1344.3 E 406 4.8 1080 # 1346.8 31 # 1349.5 49 197 * # # 1352.8 E 688 8.1 900 * 1355.1 40 # 1357.5 58 155 * # # 1363.8 E 1158 13.6 780 * 1368.1 51 # 1369.1 69 279 # # 1362.5 T 107 # 12.6 1000 * 1368.0 53 * 1369.1 69 279 # # 1362.5 T 107 # 12.8 1010 * 1367.4 52 # 1369.1 69 279 # # 1362.5 T 1098 12.8 1010 * 1367.4 52 # 1369.1 69 279 # # 1424.5 E 128 4.1 2450 * 1428.6 15 # 1429.3 41 66 # # # 1424.5 E 128 4.1 2450 * 1428.6 15 # 1430.1 42 70 # # 1450.0 E 850 27.5 1180 * 1462.0 26 * 1445.0 57 158 # # 1460.0 E 850 27.5 1180 * 1462.4 31 * 1464.9 77 356 # # 1495.8 E 166 4.1 2910 * 1462.4 31 * 1464.9 77 356 # # 1495.8 E 166 4.1 2910 * 1462.4 31 * 1464.9 77 356 # # 1495.8 E 166 4.1 2910 * 1452.0 86 257.8 # # 1515.6 E 403 10.1 1940 * 1518.1 17 * 1520.0 80 251 # # 1513.6 E 403 10.1 1940 * 1518.1 17 * 1520.0 80 251 # # 1513.6 E 404 12.6 177 1510 * 1533.3 26 * 1539.3 99 449 # # 1530.6 E 710 17.7 1510 * 1533.3 26 * 1539.3 99 449 # # 1530.6 E 710 17.7 1510 * 1533.3 26 * 1539.3 99 449 #	*	* * *	******	****	****	********	******	******	**************************************	****	* * *	* * * * * *	*****	****** E 42-4	******	**************************************	****** : 72-51
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USGS QUAD-HEATH 100-YR PRIN SPWY DESIGN STORM RUNOFF = 8.30 IN, PEAK FLOW = 17 100-YR PRIN SPWY DESIGN STORM RUNOFF = 8.30 IN, PEAK FLOW = 17 1100-YR PRIN SPWY DESIGN STORM RUNOFF = 8.30 IN, PEAK FLOW = 17 1100-YR PRIN SPWY DESIGN STORM RUNOFF = 8.30 IN, PEAK FLOM = 23 11451.6 E 620 20.0 1310 * 1454.0 26 * 1445.0 57 158 * 1460.0 E 850 27.5 1180 * 1462.4 31 * 1464.9 77 356 * 1460.0 E 850 27.5 1180 * 1462.4 31 * 1464.9 77 356 * 1460.0 E 850 27.5 1180 * 1462.4 31 * 1464.9 77 356 * 100-YR PRIN SPWY DESIGN STORM RUNOFF = 8.30 IN, PEAK FLOM = 23 1100-YR PRIN SPWY DESIGN STORM RUNOFF = 8.30 IN, PEAK FLOM = 23 1151.6 E 403 10.1 1940 * 1518.1 17 * 1520.1 80 251 * 1515.6 E 403 10.1 1940 * 1513.1 26 * 1535.3 95 400 * 1518.1 1535.0 E 821 20.5 1410 * 1537.5 29 * 1539.3 99 4499 **		12.7	1020	14		62.5	* 1362.5	-	12	x	*	1367.4	25	* 1369			
USGS QUAD-HEATH 100-YR PRIN SPWY DESIGN STORM RUNOFF = 8.30 IN, PEAK FLOW = 17 * 1424.5 E 128 4.1 2450 * 1426.9 13 * 1429.3 41 66 * * * 14420.5 E 149 4.8 2420 * 1428.6 15 * 1430.1 42 70 * * 1441.0 E 386 12.5 1560 * 1443.3 20 * 1445.0 57 158 * * 1441.0 E 850 27.5 1180 * 1454.0 26 * 1465.0 68 255 * * 1460.0 E 850 27.5 1180 * 1462.4 31 * 1464.9 77 356 * * * 1460.0 E 850 27.5 1180 * 1462.4 31 * 1464.9 77 356 * * * 1460.0 E 850 27.5 1180 * 1462.4 31 * 1464.9 77 356 * * * * 1460.0 E 850 27.5 1180 * 1462.4 31 * 1464.9 77 356 * * * * 1460.0 E 850 27.5 1180 * 1462.4 31 * 1464.9 77 356 * * * * 1460.0 E 850 27.5 1180 * 1462.4 31 * 1464.9 77 356 * * * * 1460.0 E 850 27.5 1180 * 1462.4 31 * 1464.9 77 356 * * * * 1464.9 77 356 * * * * 1460.0 E 821 10.1 1940 * 1518.1 17 * 1520.1 80 251 * * 1518.0 E 710 17.7 1510 * 153.3 1 26 * 1535.3 95 469 * * * 1535.0 E 821 20.5 1410 * 1537.5 29 * 1539.3 99 4499 * * * * 1535.0 E 821 20.5 1410 * 1537.5 29 * 1539.3 99 4499 * * * * * * * * * * * * * * * *		***********	*****	****	****	*****	*****	****		*****	****	*****	***	*	*	*****	*
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# 1460.0 E 850 27.5 1180 # 1462.4 31 # 1464.9 77 356 # ***********************************	554	17.9	1470	23	34710	61.0	* 1451.6	ш		1	*	1454.0	26	i			0
**************************************		25.0	1300	29	34960	69.5	* 1460.0	ш		1	*	1462.4	31	* 1464	6.		* 0.4
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2850 12 62870 67.1 * 1515.6 E 403 10.1 1940 * 1518.1 17 * 1520.1 80 251 * 2330 16 55800 74.8 * 1521.3 E 504 12.6 1770 * 1523.8 21 * 1526.0 86 302 * 1790 22 48480 86.1 * 1530.6 E 710 17.7 1510 * 1533.1 26 * 1535.3 95 400 * 1550 26 44840 92.5 * 1535.0 E 821 20.5 1410 * 1537.5 29 * 1539.3 99 449 * * * * * * * * * * * * * * * *		0.0		1		11.2	* 1495.8	u	4	2	* #	498	0	* 1500	5		**
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		IERGENC		VAY ST	ORAGE A	ND COST		SED 0	IN TOTAL	STORAG	E, IA	ACLUDIN	G BEN	EFICIA	L POOL.		
SPILLMAY STORAGE AND COSTS ARE BASED ON TOTAL STO	2	ERGENC	Y SPILLI	VAY TY	PE CODE	- C=CON	ETE	HUTE,	D=CONCR			-EXCAVA	TED,	T= TWO	SPILLW	AYS, N=	NONE
ARE BASED ON TOTAL STORAGE, INCLUDING BENEFICIAL POOL. ETE CHUTE, D=CONCRETE DROP, E=EXCAVATED, T= TWO SPILLWAYS, N=		BULAR	DATA ARI	BASE	D ON PR	EL IMINA	INF	MATIO	N. FIGU			RE PRIM	ARILY	FOR C	OMPARIS	ON PURP	SES.
ARE BASED ON TOTAL STORAGE, INCLUDING BENEFICIAL POOL. ETE CHUTE, D=CONCRETE DROP, E=EXCAVATED, T= TWO SPILLWAYS, N= NONE INFORMATION, FIGURES SHOWN ARE PRIMARILY FOR COMPARISON PURPOSES.		EVATIC	ARE	SHOWN		NEAREST	0.1 FCC	10	MOHS	RIATION	8	JEEN DE	VELOP				01 10
COSTS ARE BASED ON TOTAL STORAGE, INCLUDING BENEFICIAL POOL. C=CONCRETE CHUTE, D=CONCRETE DROP, E=EXCAVATED, T= TWO SPILLWAYS, N= IMINARY INFORMATION, FIGURES SHOWN ARE PRIMARILY FOR COMPARISON PURPO AREST 0.1 FOOT TO SHOW VARIATION BETWEEN DEVELOPMENTS ONLY, AND ARE N	į			-		00000											

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HICKLEY RIVER	a HIGH WATER a same as a same		(MSL.) (AC) * (MSL.) FT	LATITUDE 42-34-37 LONGITUDE 72-57-00 RM RUNDFF = 8.30 IN, PEAK FLOW = 2503 CFS	* * 1162.9 88	36 * 1170.1 95 42 * 1179.9 105	1177.1 43 * 1180.0 105		LATITUDE 42-36-33 LONGITUDE RUNOFF = 8.30 IN, PEAK FLOW =	* 862.3 36 * 865.9 76	863.6 38 * 867.0 77	58 * 893.1 103	896.1 61 * 898.6 109 897.5 62 * 899.6 110	**********	LATITUDE 42-38-00 LONGITUDE	**	771.3 28 + 773.3 43	33 * 779.4	181.0 42 + 188.9 59	56 * 799.5 70	INCLUDING BENEFICIAL POOL.	ED, T= TWO SPILLWAYS	VELOPMENTS ONLY, AND
SUBWATERSHED-CHICKLEY RIVER ************************************		STORAGE AT CREST	AC FT IN (\$)	USGS QUAD-PLAINFIELD 100-YR PRIN SPWY DESIGN STORM R	1.6 3490 *	2.0 3040 * 2.8 1660 *	1340 *		USGS QUAD-PLAINFIELD	* 6.1 870 *	848.8 T 567 3.9 2260 * 8	T 1597 11.1 1100 *	889.1 T 2285 15.8 820 * 8 892.5 T 2479 17.2 810 * 8	中中市市 中市	USGS QUAD-HEATH		390 6.8 2390 *	E 564 9.8 2010 *	793.7 E 1302 22.6 1360 # 7	795.0 E 1370 23.7 1330 *	CRITERIA AND COST DATA. ARE BASED ON TOTAL STORAGE.	ETE CHUTE, D=CONCRETE DROP, INFORMATION, FIGURES SHOWN	SITE SELECTION OR LAND ACOU
STUDY AREA-DEERFIELD RIVER ************************************		COST COST/ DEPTH * PER AREA SURF AT *		######################################	3850 22 110550 66.9 *	27			SITE-DE-1305 DA= 2.69 SQ MI = 1722 AC SITE RATING (1) STREAM WATER QUALITY (B) 1	3 14.0 *	2350 26 49730 58.8 #	50 35070	830 58 3254C 99.1 * 810 6C 3353C 102.5 *	*****	DA = 1.08 SQ MI = 691 AC		3920 19 49100 32.4 *	27 41780 40.5	1510 47 37780 61.1 *	1480 49 37570 62.5 *	(1) COSTS ARE BASED ON 1971 S.C.S. DESIGN (2) EMERGENCY SPILLWAY STORAGE AND COSTS	SPILLWAY TYPE CODE- C	CONSIDERED ACCURATE TO THAT DEGREE. ** DO NOT USE FOR FINAL
STU		ELEV STORAGE	(MSL) AC FT IN	SITE-DE-1304 SITE RATING (1) STREAM WATER QUA	1141.9 642 1.4	1149.3 821 1.7 1160.9 1178 2.5	1536		SITE-DE-1305 SITE RATING (1)	804.0 0 0.0	848.8 545 3.8	1576 1	892.5 2458 17.1	****	SITE-DE-1306		762.4 237 4.1	424	791.2 1174 20.4	792.5 1236 21.5	0	(3) EMERGENCY (4) TABULAR DA	(5) ELEVATIONS CONSIDERED

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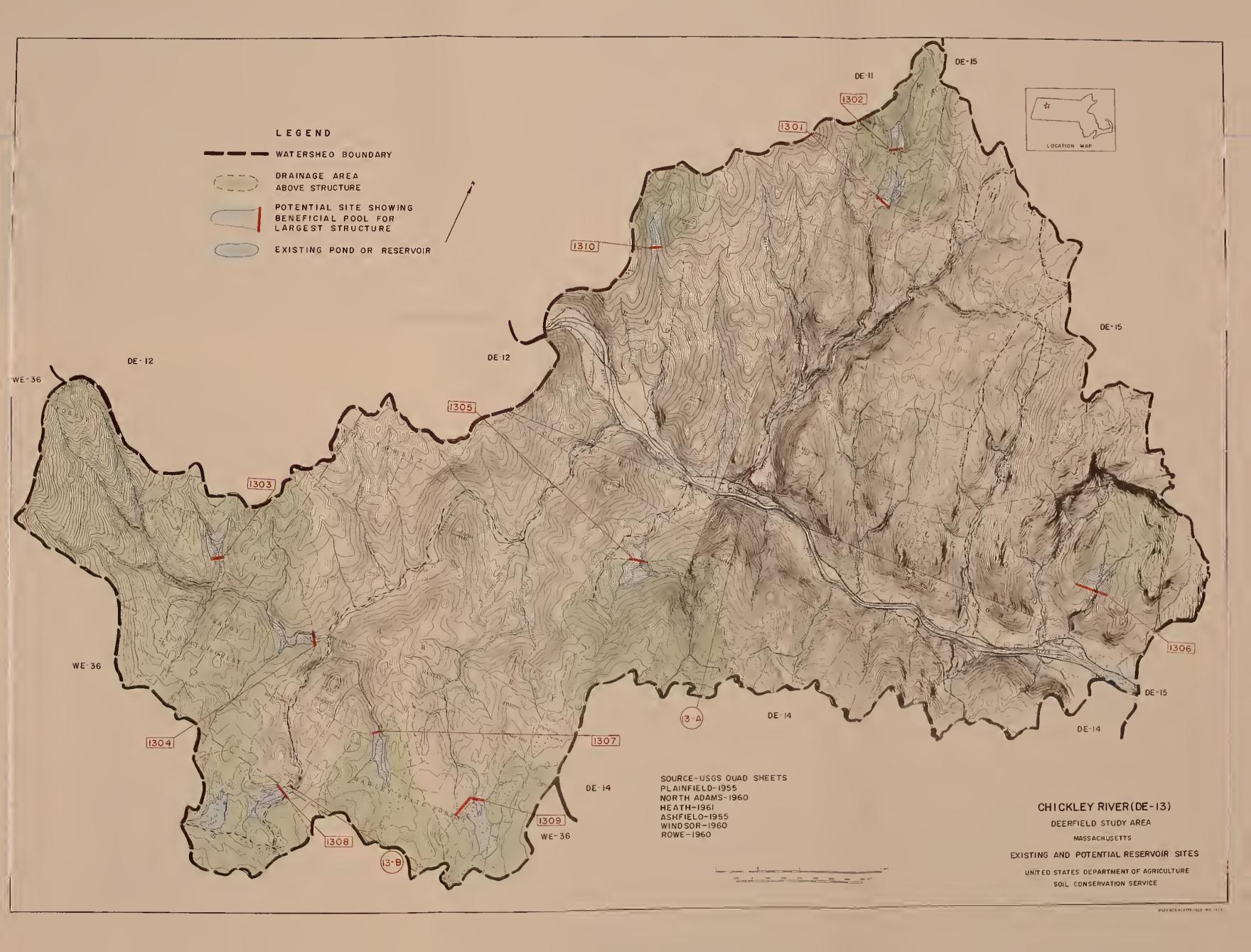
	BENEFICIAL	CIAL POOL	01	BENEFICIAL POOL *			EMERGENCY	ENCY S	SPILLWAY	>	* DESIGN * HIGH WATER	IGN	* *			
******* STORAGE	***** GE	COST PER	*****	**************************************	DEPTH AT		* 1	****** STORAGE AT CRES	RAGE CREST	COST ***	STORAGE COST & ELEV AREA & ELEV	AREA	****** * TOP * ELEV	*******/	*	** AT 95 *PERCENT *CHANCE
AC FT	Z	AC FT	(AC)	(\$)	(FT)		TYPE MSL)	AC FT	N	AC FT (\$)	* (MSL)	(AC)	* (MSL)	. FT	(Y)	* (MGD)
SITE-DE-1307 SITE RATING ((1)	******* DA= 1.	1.55 SQ MI = REAM WATER QU	ALI	992 AC TY (B)	= 1 0	USGS QU/	QUAD-PLA PRIN SPW	**************************************	5N STORM	**************************************	**************************************	+++++++ DE 42-33 8.20 IN	33-58 L	LONGITUDE \(\) FLOW =	**************************************
c	0,0		K		11,1	* *	465.3 F	£7E	4-1	1070	* 1467.6	19	* 1469	2	37 74	* *
337	4.1	1580	17	31540	48.7	*				850	* 1480.6		*	4	and the second s	*
493	0.9	1180	24	24740	56.3	* 1	481.8 E	1073	9.0	790	* 1484°3 * 1493 l	3 35	* 1486-1	5.1 69	9 148	* 0.64
	13.5	710	46	17220	74.8	* *				610	* 1498.0		* 1499.6			. *
1147	13.8	069	47	16850	75.5	*	495.5 E	1308	15.7		* 1498.0	1	* 1499.6	1		* :
SITE-DE-1308 SITE RATING (3 (1)	DA= 1. STREA	1.59 SQ MI EAM WATER	" NA	1018 AC ITY (B)		USGS QU/	USGS QUAD-PLAINFIEL	QUAD-PLAINFIELD PRIN SPWY DESIGN	Z	RUNO			AK	LONGITUDE FLOW =)E 72-56-3 486 CFS
0	0.0		0		0.0	* *	618.6 E	380		100	* 1621.1	1 30	* 1623.0		3 19	****
377	4.4	1030	28	14050	19.0	* :			7.8	į.	* 1629.9		* :	1.8 32		* 0.56
	14.7	560	52	13440	41.2	*	645.6 E	-		460	* 1648.1	1 63	* 1650.1			
- 1	21.6	470	68	12550	50.9	*		1	23.7	420	* 1655.8	-	*	:	!	*
1652.5 1940	22.9	460	71	460 71 12620 52.5 ###################################	52.5	* 1	655.0 E	19	2135 25-2	420	* 1657.5	*	* 1659.3	.3 59	9 198	79 ± 1659.3 59 198 ± 1.29
_		DA= 1. STREA	1.20 SQ MI REAM WATER	= 1.20 SQ'MI = 76 STREAM WATER QUALITY	768 AC TY (B)	1.0	1.	AD-PLA IN SPW	QUAD-PLAINFIELD PRIN SPWY DESIGN	Z	RUNO	AT	DE 42-33- 8.20 IN:	33-39 LONGI	LONGITUDE	JE 72-54-08
0	0.0		60		2.0	* *	611.6 F	266	4.1	400	* 1614-1	1 55	* 1617.1	71 17	8	* * *
	4.3	099	47	3900	12.2	*	1			440	* 1617.1		* 1619.3		1	*
718	11.2	430	75	4120	19.4	* *	60	925		330	# 1624.3	3 87	* 1626.9	5.9 27	7 33	* 0.71
	25.0	380	100	6050	29.5	*	632.0 E		29.2		* 1634.0		*		1	
* * * * *	***	****	* * * *	中華宗教教育教育教育教育教育教育教育教育教育教育教育教育教育教育教育教育教育教育教	***		***	***	****	***	****	***	***	****		*
(1) COS (2) EME	COSTS ARE	E BASED ON	ON 19	BASED ON 1971 S.C.S. SPILLWAY STORAGE AND	S. DESIGN		CRITERIA RE BASED	A AND COST	AND COST DATA.	DATA. STORAGE	INCLUD	ING BEN	VEF ICIA	INCLUDING BENEFICIAL POOL.		
(3) EME	RGENC	SPILL	MAY TY	EMERGENCY SPILLWAY TYPE CODE- C-CONCRETE	00=0 -	NCRETE	CHUT	E, D=C	ONCRET)	4			T= TWO SPILLWAYS,	AYS,	N= NONE
1	OLAR	IADULAR DAIA ARE DASED UN PRELIMINARY	E DASE	22 22	LLIMIN		LICKEA	- NOT -	INTUKED ICH - LIGOKEN	NEULIN N	AKE PKINAKILY FUK	MAK		COMPAKISON		PURPUSES.
(2) ELE	VATION	IS ARE	SHOWN	ELEVATIONS ARE SHOWN TO THE NEAREST 0.	NEARES	1 .	FOOT	TO SHOW	ļ.	TION	ETWEEN	DEVELOPMENTS		ONLY, /		NOT TO BE

** DO NOT USE FOR FINAL SITE SELECTION OR LAND ACQUISITION. **

STUDY AREA-DEERFIELD RIVER S	
7. *******	THE CONTRACT
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SUBWATERSHED-CHICKLEY RIVER	1
UBWATE	
***	1400
*	
TELD RIVER	
STUDY AREA-DEERFIELD RIVER	
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SUMMARY DATA FOR POTENTIAL UPSTREAM RESERVOIR SITES

SUBMATERSHED-CHICKLEY RIVER	* SAFE * YTFLD	***** AT 95		VOL *CHANCE	1	作: "我们是我们的,我们是我们的,我们是我们的,我们是我们的,我们是我们的,我们是我们的,我们是我们的,我们是我们的,我们是我们的,我们是我们的,我们是我们的,我们	LATITUDE 42-39-40 LONGITUDE 72-54-34 FF = 8.30 IN. PEAK FLOW = 204 CFS	*	***** * 86	*	278 + 0.45		443 * 0.55	由来来来来来来来来来来来来来来来来来来来来来来来来来来来来来来来来来来来来		HNON HN		ARE NOT TO BE							
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Y RIVER	SN *	*******	*	AREA * ELEV	(AC) * (MSL)	********	ATITUDE 42-3 = 8 30 IN		11 * 1296.1	*	72 = 1310.6	: #E	30 * 1337.4	*******	AT STABLE OF	TED TE THE	HARILY FOR C	EVELOPMENTS	*						
SUBWATERSHED-CHICKLEY RIVER	+ DESIGN + HIGH WATER	*	*	* ELEV FT *	1	********	RUND		2950 # 1293.6	* :	1490 = 1309 0	. #	1190 # 1335.5	*******	TAICLEIDIN	EMERGENCY SPILLMAY TYPE CODE. C.CONCRETE CHITE, D.CONCRETE DROP. FEFXCAVATED. TE TWO SPILLMAYS.	INFORMATION. FIGURES SHOWN ARE PRIMARILY FOR COMPARISON PURPOSES.	.1 FOOT TO SHOW VARIATION BETWEEN DEVELOPMENTS ONLY, AND ARE NOT TO	SITE SELECTION OR LAND ACQUISITION.						
SUBWATER *****	SPILLWAY	******		AT CREST PER	ZI	********	USGS QUAD-ROWE		4.1	9.9	16.2	23.6	7 27.2 11	****	AND COST DATA.	CONCRETE DR	FIGURES SH	OW VARIATIO	ON OR LAND						
***	EMERGENCY SPILLWAY	******		ELEV AT C TYPF	(MSL) AC FT	*******	USGS QUAD-ROWE		ш	w ı	1306.5 E 549	ı w	1333.1 E 957	******	CRITERIA AND	F CHITE DE	NFORMATION	FOOT TO SH	SITE SELECTI						
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STUDY AREA—— STUDY AREA—DEERFIELD RIVER ***********************************		· · · · · · · · · · · · · · · · · · ·	j	AREA SURF	(AC) (\$)	********	STREAM WATER CHAITY (B)		1		21 44630		28 41080	*******	1971 5.(AV TYPE CON	TABULAR DATA ARE BASED ON PRELIMINARY	ELEVATIONS ARE SHOWN TO THE	** DO NOT USE						
STUDY AF	BENEFICIAL POOL	******		PER A	(\$)	********	DA= 0.66 SQ MI		0		2400		0 1300	****		NCV SPILL	R DATA ARE	IONS ARE SI							
***************************************	BENE	******		STORAGE	AC FT IN	*******	TE-DE-1310		0 0 0		273 7.8		880 25.0	*******	(1) COSTS ARE	- 1		(5) ELEVATIONS							
		*****		ELEV	(MSL)	******	SITE-DE-1310		1255.0	1292.4	1302.0	1326.0	1330.6	*****	NOTES -										





DEERFIELD STUDY AREA SITE DATA FOR

Subwatershed DE-11 Clesson Brook

The Clesson Brook Subwatershed covers about 13,200 acres in Ashfield, Buckland and Hawley, all in Franklin County.

Clesson Brook flows generally northeasterly from Hawley to its confluence with the Deerfield River in Buckland. Elevations range from about 1,940 feet in Hawley to about 480 feet at the confluence.

Geology within the subwatershed is predominantly characterized by schist bedrock overlain by 10 to 20 feet of englacial drift, glacial till or outwash sand and gravel.

Six potential reservoir sites were studied.

SITE DE-1401

Location:	0n	Clesson	Brook	about	500	feet	downstream	from	Forget
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Branch Road in Hawley, Massachusetts.

Ashfield, Massachusetts U.S.G.S. Quadrangle

Latitude:	42°34120"	Longitude:	72 52 106"
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Facilities	Facilities	Elevation
Affected:	4 wire electric line	1655
	2 houses	1650
	House	1635
	Trailer & barn	1615
	Forget Branch Road	1605
	5 wire electric line	1540
	Buckland Road	1540

Geologic	
Conditions	

The right abutment is thin discontinuous englacial drift or glacial till underlain by schist bedrock. The left abutment is englacial drift or till, may have some outwash sands and gravel. The surficial deposits are englacial drift or glacial till. Streambed material is cobbles. Depth to bedrock in the foundation is estimated to be from 15 to 25 feet. Waterholding capabilities appear to be good. Borrow material for dam construction was located near the site.

Engineering Notes:

The left abutment is recommended for the emergency spillway location.

Public Ownership:

Below elevation 1.690 feet, approximately 10 acres lie within the Hawley State Forest.

Location:

On Clark Brook about 1200 feet upstream of Ashfield Road in Buckland, Massachusetts.

Ashfield, Massachusetts U.S.G.S. Quadrangle

Latitude: 42°36'11" Longitude: 72°45'46"

Facilities Affected:

Facilities	Elevation
Cemetery	780
House	780
3 wire utilities	765
East Buckland Road	765
Barn	720
Utilities	685

Geologic Conditions:

Both abutments are englacial drift but may have thin sand and gravel at the surface. The surficial deposits are englacial drift and sand and gravel. Streambed material is cobbles. Depth to bedrock in the foundation is estimated to be from 10 to 15 feet. Waterholding capabilities appear to be good with leakage expected through both abutments. Borrow material for dam construction was not located near the site.

Engineering Notes:

The left abutment is recommended for the emergency spillway. The normal cutoff trench for an earthfill dam will probably cutoff the leakage through the abutments. Preliminary structure designs indicate that a concrete chute spillway may be needed at this site. Waterholding capabilities might be improved by a cutoff through the thin sand and gravel on the abutments.

SITE DE-1403

Location:

On Clark Brook about 800 feet upstream of Neilman Road in Buckland, Massachusetts.

Ashfield, Massachusetts U.S.G.S. Quadrangle

Latitude: 42°35.22" Longitude: 72°46'03"

Facilities Affected:

Facilities	Elevation
House, 2 barns, garage	950
House	930
Garage	920
Barn	910
Dug-out pend	910
House and shed	890
Shed	880
East Buckland Road	850

SITE DE-1403 (Cont'd)

Geologic Conditions:

The right abutment is outwash sand and gravel at the toe of the slope and englacial drift higher on the abutment. The left abutment is englacial drift. The surficial deposits are outwash sand and gravel and englacial drift. Streambed material is cobbles. Depth to bedrock in the foundation is estimated to be from 15 to 20 feet. Waterholding capabilities appear to be fair with leakage through the right abutment. Borrow material for dam construction was located near the site.

Engineering Notes:

The right abutment is recommended for the emergency spillway location. Waterholding capabilities might be improved by a cutoff through the sand and gravel on the right abutment.

SITE DE-1404

Location:

From the Ashfield Road and Bronson Road intersection, about 2,000 feet along Bronson Road to an un-named brook, then about 300 feet downstream on this brook, in Ashfield, Massachusetts.

Ashfield, Massachusetts U.S.G.S. Quadrangle Latitude: 42°33'48" Longitude: 72°47'52"

Facilities Affected:

Facilities
Bronson Road

Elevation 780

Geologic Conditions:

Both abutments are englacial drift. Surficial deposits are drift and englacial outwash sand. Streambed material is cobbles. Depth to bedrock in the foundation is estimated to be from 5 to 15 feet near the right abutment; and from 15 to 20 feet near the left abutment. Waterholding capabilities appear to be fair. There may be leakage through the foundation near the left abutment. Borrow material for dam construction was located near the site.

Engineering Notes:

The left abutment is recommended for the emergency spillway location. Waterholding capabilities might be improved with a cutoff through the foundation area.

Location:

On Upper Branch Brook about 1100 feet upstream from the intersection of Smith Road and Apple Valley Road in Ashfield, Massachusetts.

Ashfield, Massachusetts U.S.G.S. Quadrangle Latitude: 42°33'21" Longitude: 72°48'43"

Facilities Affected:

Facilities Elevation
House & 2 barns 930
2 storage sheds 915
2 barns 890
House 885
Electric lines (3 wire) 875
Apple Valley Road 875

Geologic Conditions:

Both abutments are thin discontinuous outcrops of englacial drift underlain by schist bedrock. The surficial deposits are englacial drift and schist bedrock. The bedrock is moderately fractured in outcrops; fractures are 2 to 4 feet apart. The foundation area has bedrock at the surface in some areas. Streambed material is cobbles. Waterholding capabilities appear to be fair to good. Borrow material for dam construction was located near the site.

Engineering Notes:

Preliminary structure designs indicate that a concrete chute spillway will probably be needed at this site.

SITE DE-1406

Location:

Approximately 3,000 feet south along Smith Road from the intersection with Apple Valley Road, then approximately 50 feet west to an unnamed brook in Ashfield, Massachusetts.

Ashfield, Massachusetts U.S.G.S. Quadrangle Latitude: 42°32'48" Longitude: 72°48'38"

Facilities Affected:

Facilities Elevation
Smith Road 1080
8 wire utilities 1080

3 houses and 3 barns near centerline

Geologic Conditions:

Both abutments are thin englacial drift underlain by schist bedrock. The surficial deposits are englacial drift and bedrock. The bedrock is moderately fractured in outcrops. Fractures are from 4 to 6 feet apart. The foundation shows bedrock at the surface in many areas. Waterholding capabilities appear to be fair to good. Borrow material for dam construction was located near the site.

Engineering Notes:

The left abutment is recommended for the emergency spillway location.

SUMMARY CATA FOR POTENTIAL UPSTREAM RESERVOIR SITES

SAFE YIELD	*PERCENT *CHANCE	(MSL) (AC) * (MSL) FT CY) * (MGD) ********************* LATITUDE 42-34-20 LONGITUDE 72-52-06 RUNOFF = 8.30 IN PEAK FLOW = \$90 CFS	0.42 0.60 0.85 1.00 1.05	72-45-46 820 CFS **** 0.88 1.37	1.69	421.CFS	0.47
## ## 7 3 3 3 4 3	k 1	**************************************	102 * 151 * 219 * 334 * * 396 * *	TUDE = * * 339 * * 542 *	* * * *	# * * 8	273 * 401 * 556 * *
DAM	–)	FT (************************************		AK 7	100	AK FLOW	54 58 68 78
ØQ .	TOP ELEV	**************************************	1644.5 1651.8 1661.0 1664.8	E 42-36-11 *30 IN, PE * 747.7 * 750.9 * 765.5	779.0	30 IN PEAK 893.3 36	902.4
Ж.	* * *	(AC) * ****** LATITUDE FF = 8.3	4 4 4 4 4 4 4 4 4 4 4 4 4 4 4 4 4 4 4	m • * * *	70 * 73 * * * * * * * * * * * * * * * * *	FF = 8.3 0 24 *	32 * * * 53 * * * 63 * * * 64 * 64 * 64 * 64 * 64
* DESIGN * HIGH WATER		(MSL) (******* LAT RUNOFF	1635.3 1642.0 1650.0 1658.6 1662.3	LAT RUNOFF 744.5 747.5 762.7	775.5	RUNDFF	900.4 913.4 923.5
3 3 3 2	* * *	(4) *** STORM	* * * * * *	N STORM ** 1130 ** 2390 ** 1400 **	1280 * 1040 * * * * * * * * * * * * * * * * * *	N STORM *	1090 * 890 * 790 *
SPILLWAY	-	AC FT IN ************************************	1100	111. >	1877 13.2 2351 16.6 *******		770
EMERGENCY		# # # # # # # # # # # # # # # # # # #	*	QUAD-ASHI PRIN SPW E 852 T 597 T 1237	1877	IN SP	542 993 1446
EMIK EMIK	CREST ELEV TYPE	(MSL) ****** USGS QU 100-YR PR	*	USGS QU 100-YR PR 742.2 E 734.5 T	~ 10 +	00-YR PR 888.5 E	898.0 E 911.0 E 921.0 E
* *	DEPTH * DAM *+		# 6 7 9 9 8 8 8 8 8 8 8 8 8 8 8 8 8 8 8 8 8	* * * *	84.6 * 92.5 * * * * * * * * * * * * * * * * * * *	TY (B) 1	32.5 * 49.5 * 61.5 *
	COST/ SURF AC	(\$) (AC) (\$) (FT) *************** = 1.26 SQ MI = 806 AC STREAM WATER QUALITY (B)	4.0 1800 22 2222C 34.4 4.0 1870 21 2028C 43.0 14.5 860 48 1728C 55.0 21.5 780 60 1872C 63.6 25.0 750 65 1944C 67.5 ************************************	= 2.65 SQ MI = 1696 AC STREAM WATER QUALITY (B) 3 4702C 54.5 1430 44 3967C 71.6	4285C 3712C	QUALI	2613C 2448C 2407C 2212C
, 	AREA	(AC) ***** 6 SQ P WATE	22 22 31 48 60 65	5 SQ MATER WATER 3 30 44	56	WATER 3	23 36 47 58
BENEFICIAL POOL	COST PER AC FT	(\$) (AC) (\$) ***********************************	1800 1270 860 780 750	DA= 2.65 STREAM W 2480 1430	1300	CAE I.30 SW MI STREAM WATER 3	1910 1090 870 700
SENEFI	16E	#*************************************	7.5 14.5 21.5 25.0	(1) 0.0 4.1 8.6	13.1	0.0	4.3 11.2 18.1 25.0
	********	AC FT ****** 1401 ATING (1 7	000	1855 2330 *****	าย 0	309 810 1312
	**************************************	* 1 ~	1601.4 1624.4 272 1645.1 1653.6 1653.6 1657.6 1657.8 1657.8 1680 1657.8 1680 1	SITE-DE-14C2 SITE RATIN 693.7 734.5 57 751.7 121	772.5 2330 16.5 1050 56 4285C 84.6 772.5 2330 16.5 1050 66 3712C 92.5 ************************************	SITE RATING 864.5 0	989.5 906.5 918.5

(2) EMERGENCY SPILLWAY STORAGE AND COSTS ARE BASED ON TOTAL STORAGE, INCLUDING BENEFICIAL POOL.

(3) EMERGENCY SPILLWAY TYPE CODE— C=CONCRETE CHUTE, D=CONCRETE DROP, E=EXCAVATED, T= TWO SPILLWAYS, N= NONE

(4) TABULAR DATA ARE BASED ON PRELIMINARY INFORMATION. FIGURES SHOWN ARE PRIMARILY FOR COMPARISON PURPOSES.

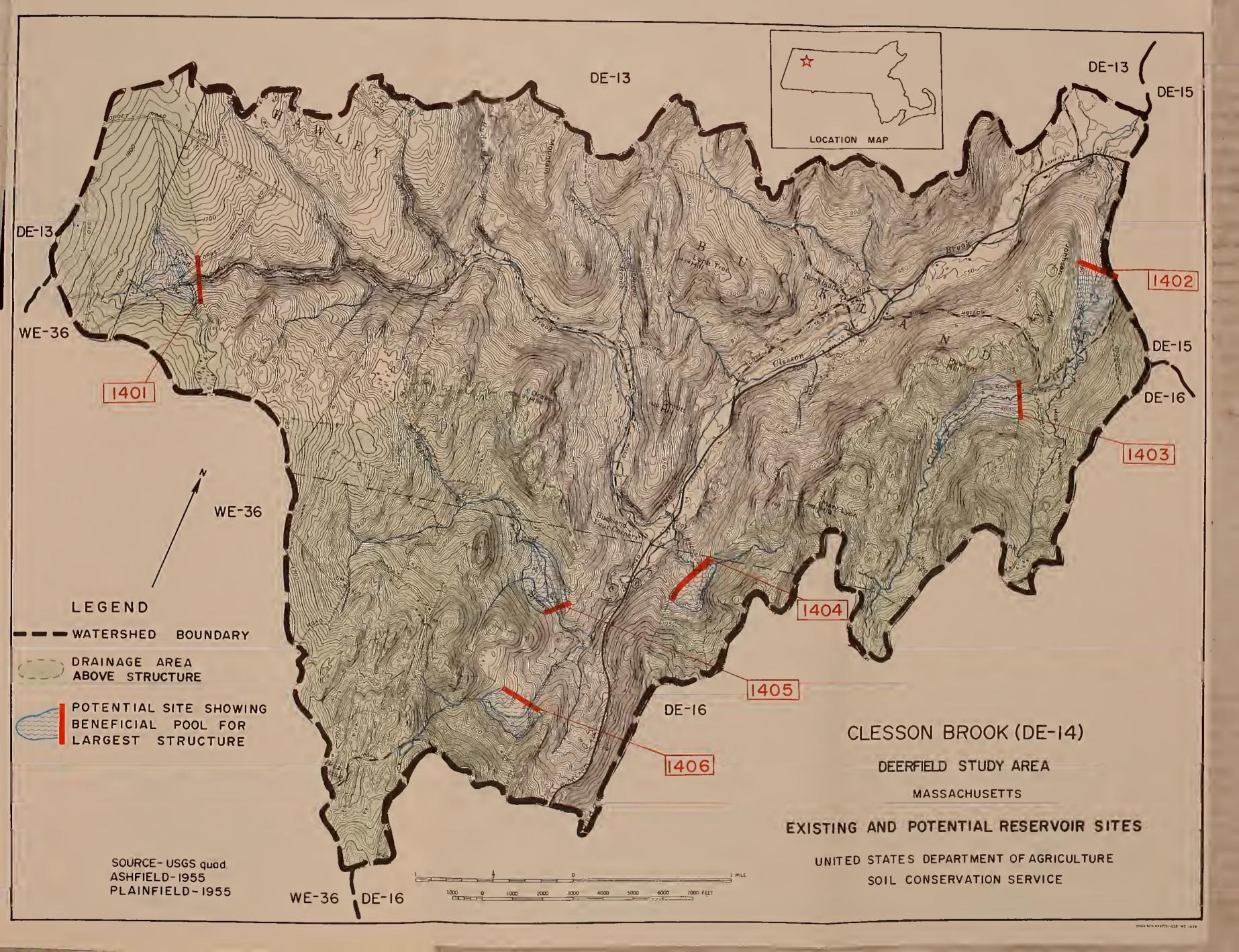
(5) ELEVATIONS ARE SHOWN TO THE NEAREST 0.1 FOOT TO SHOW VARIATION BETWEEN DEVELOPMENTS ONLY, AND ARE NOT TO BE

CONSIDERED ACCURATE TO THAT DEGREE.

** DO NOT USE FOR FINAL SITE SELECTION OR LAND ACQUISITION. **

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FLOW = FLOW = CY) * CY)			*	STUDY	AREA-D	STUDY AREA-DEERFIELD		***	*	SUB !!	SUBMATERSHEDCLESSON	********	BROOK *****		****	***	* * * *
STORAGE CCST COST DEPTH CREST STORAGE COST			BENEFI	CIAL PO	01			# EME	RGENCY	SPILLWA	*	DESI	* NS	1	DAM		* SAFE
STORAGE CCST ACK ACK STORAGE COST CEEV ACK		1		1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1		1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1	1 1 1	1				HIGH W	ATER *				* YIELD
DEFT IN 151 (AC) 151 (FI) (14SL) AC FT IN 151 (HSL) (1C) (HSL) FT CONTROLL	*****	de		CCST PER	AREA	COST/ SURF	DEPTH AT	CREST FELEV TYDE	STOR	AGEREST	COST. +	ELEV	AREA		НСТ	FILL	*PERCENT *CHANCE
CELIGGA Date Color Col	(MSL)	AC FT	Z	(\$)	(AC)	(\$)		1	AC FT	ZI	(\$)	(MSL)	(AC) #	(MSL)	FT	()	* (MGD)
127 4.0 3450 14 3242C 26.2 889.8 E 199 6.3 2200 892.1 17 894.1 35 94 8 94 1 10 10 10 10 10 10 10 10 10 10 10 10 1	***** SITE-DE SITE	-1404 RATING	(1)	EA= 0. STREA	59 SO MATE	****** MI = R QUALI	de .	•	QUAD-AS	HFIELD WY DESI	STOR	* }	ATITUDE	42-33-	+8 LON	GITUDE OW =	72-47-52 183 CFS
127 4.0 3450 14 34242 25.2 8 898.8 8 99 6.3 200 8 993.1 17 8 994.0 45 187 2 3 127 4.0 1920 25 3140 293.3 9 00.8 8 691 202 1480 9 933.1 27 8 95.0 46 9 13 3 547 11.0 1670 25 3170 26 4910.5 8 682 27.4 1400 8 921.1 27 8 915.3 56 317 5 7 18.0 1670 25 3170 26 4910.5 8 682 27.4 1400 8 921.1 27 8 915.3 6 459 5 7 18.0 1670 25 3170 26 4910.5 8 68 27.4 6 7 18.0 1670 25 3170 26 4910.5 6 7 18.0 18.0 18.0 18.0 18.0 18.0 6 7 18.0 18.0 18.0 18.0 18.0 18.0 7 7 7 7 7 7 7 7 7		0	0.0		1		7.6	٦,	E 13	1 4.1		887.	Ŋ	890.6	32	73	***
18	885.3	127	4.0	3450	14	32420	26.2	889.8			2200 #	892.1		894.1	35	187	* 0.20
CE-1405 CE-	908.0	567	18.0	1670	2 2 2 2 2 2 2 2 2 2 2 2 2 2 2 2 2 2 2 2	37140	0.64	910.5	սաս		1480 *	913.0	1	915-3	56	1	1
CE-1405 CE-1406 CE-1405 CE-1406 CE-1405 CE-	•				7	2 30					2		*				*
THE RATING (1) STREAM WATER QUALITY (B) 100-YR PRIN SPHY DESIGN STORM RUNGEF = 8.20 IN, PEAK FLOW = 8.4	******	******	***	F******	****** 52 SO	******	*******	本事事事事事事事事	******	**************************************	*****	*****	*******	4*****	*******	******	72-48-43
4 72 3.5 2510 25 4707C 50.7 * 920.6 T 492 3.6 2410 * 933.5 34 * 937.6 68 231 * 36 1058 7.8 136 3.5 2510 25 4707C 50.7 * 920.6 T 492 3.6 2410 * 933.6 34 * 953.8 84 396 85 231 * 36 1058 7.8 1360 39 3.666C 69.5 * 939.5 T 1078 8.0 1330 * 950.4 44 * 953.8 84 396 85 20 8 1644 12.2 1010 46 3627C 83.3 * 953.3 T 1008 8.0 1330 * 964.1 54 * 967.8 98 592 * 866.5 10.6 10.6 10.6 10.6 10.6 10.6 10.6 10.6	SITE	טר	(1)		M WATE	UAL	TY (B)	1		WY DEST	GN STORM	RUNO	11	20 IN. F	EAK FL	= MO	770 CFS
4 4 72 3.5 2510 25 47C7C 50.7 8 939.5 T 1078 8.0 1330 8 950.4 44 8 937.6 68 231 8 95 105 7.8 1360 39 3686C 69.5 8 939.5 T 1078 8.0 1330 8 950.4 44 8 937.6 68 231 8 95 231 8 95 25 10 2 9 37.6 6 8 231 8 95 2 10 2 9 20.6 T 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1	c	C	0		C			* .						000	ŗ	200	
164 12.2 1C10 46 3627C 83.3 * 953.3 T 1664 12.3 1000 * 964.1 54 * 967.8 84 596.2 1644 12.2 1C10 46 3627C 83.3 * 953.3 T 1664 12.3 1000 * 964.1 54 * 967.8 98 592 1644 12.2 1C10 46 3627C 83.3 * 953.3 T 1664 12.3 1000 * 964.1 54 * 967.8 98 592 165 2096 15.6 830 25 3271C 83.3 * 953.3 T 1664 12.3 1000 * 964.1 54 * 967.8 98 592 166 21.10 5 TREAM WATER QUALITY (8) 100-YR PRIN SPW DESIGN STORM RUNDFF = 8.20 IN. PEAK FLOW = 9.20 IN. PEAK FLOW IN. PEAK FLOW = 9.20	9 6	0 0	0 4	2510	25	77777	50.7	4 931.1		1	- 1		- 1		68	-	* * * * *
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**************************************	953.3	1644	12.2	1010	46	36270			_								* 1.55
TERRATING (1) STREAM WATER QUALITY (B) 100-YR PRIN SPHY DESIGN STORM RUNDFF = 8.20 IN, PEAK FLOW = 1.19 SQ MI = 762 AC USGS QUAD-ASHFIELD LATITUDE 42-32-48 LONGITUDE	962.5	2096	15.6	830	53	3271C	92.5	4 962.5	-		820 *	967.4		6.696		624	
Considered Da = 1.19 SQ MI = 762 AC USGS QUAD-ASHFIELD	3\$E	* * * * *		* * * * *	***	** ** * *	*****	*	******	*****	*****		*****	*****	*****	****	****
### ##################################	SITE-CE	-1406			19 50	11			QUAD-AS	HFIELD			TITUD	42-32-	i :	GITUDE	72-4
1 0 0.0 C 2 8.1 * 1109.4 E 263 4.1 1650 * 1111.8 21 * 1113.9 34 4 275 4.3 2330 20 3165C 30.4 * 1118.9 E 464 7.3 1380 * 1121.4 23 * 1123.3 43 1 712 11.2 1420 30 3422C 49.0 * 1133.6 E 864 13.6 1170 * 1136.1 34 * 1137.8 58 1 1149 18.1 1150 36 3676C 62.1 * 1144.6 E 1249 19.7 1060 * 1147.1 36 * 1148.6 69 1 1587 25.0 1020 37 43C5C 74.1 * 1156.6 E 1690 26.5 960 * 1159.1 38 * 1160.6 81 2 (2) EMERGENCY SPILLMAY STORAGE AND COST AND COST DATA. (3) EMERGENCY SPILLMAY TYPE CODE— C=CONCRETE CHUTE, D=CONCRETE DROP, E=EXCAVATED, T= TWO SPILLWAYS (4) TABULAR DATA ARE BASED ON PRELIMINARY INFORMATION. FIGURES SHOWN ARE PRIMARILY FOR COMPARISON (5) ELEVATIONS ARE SHOWN TO THE NEAREST 0.1 FOOT TO SHOW VARIATION BETWEEN DEVELOPMENTS ONLY, AND CONSIDERED ACCURATE TO THAT CEGREE. **********************************	1	KALING		SIREA					- 1	WY DESI	- 1		11	N	PAK FL	- 1	364 CFS
*4 275 4.3 2330 20 3165C 30.4 * 1118.9 E 464 7.3 1380 * 1121.4 23 * 1123.3 43 *1 712 11.2 1420 30 3422C 49.0 * 1133.6 E 864 13.6 1170 * 1136.1 34 * 1137.8 58 *1 1149 18.1 1150 36 3676C 62.1 * 1144.6 E 1249 19.7 1060 * 1147.1 36 * 1148.6 69 *1 1587 25.0 1020 37 43C5C 74.1 * 1156.6 E 1690 26.5 960 * 1159.1 38 * 1160.6 81 ***********************************	1088.1	0			2		8.1	•		4		1111		1113	34	83	***
1 1149 18.1 1150 36 3422C 49.0 * 1133.6 E 864 13.6 1170 * 1136.1 34 * 1137.8 58 1 1149 18.1 1150 36 3676C 62.1 * 1144.6 E 1249 19.7 1060 * 1147.1 36 * 1148.6 69 1 1587 25.0 1020 37 43C5C 74.1 * 1156.6 E 1690 26.5 960 * 1159.1 38 * 1160.6 81 ***********************************	1110.4	275	4.3	2330	20	31650	30.4	# 1118.9	w		1	1121		1123	43	ı	* 0.41
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DEERFIELD STUDY AREA SITE DATA FOR

Subwatershed DE-15, North River

The Massachusetts portion of the North River Subwatershed covers about 33,800 acres in Rowe, Heath, Colrain, Charlemont, Shelburne, and Buckland all in Franklin County.

The West Branch of the North River originates in Vermont and flows southeasterly to Griswoldville. The Fast Branch of the North River also originates in Vermont and flows southerly to Griswoldville. The two branches join and flow southerly to the confluence with the Deerfield River in Charlemont. Elevations, in Massachusetts, range from about 2,060 feet in Rowe to about 400 feet in Shelburne Falls.

There are two overflow dams on the Deerfield River near Shelburne Falls and one on the North River at Griswoldville.

Geology within the subwatershed is predominantly characterized by schist or gneiss bedrock overlain by 15 to 20 feet of glacial till, englacial drift or outwash sand and gravel.

Seventeen potential reservoir sites and one existing reservoir were studied. Summary Design Tables are included for fifteen potential sites that met study criteria.

SITE DE-1501

Location:

On Dickinson Brook about 3,000 feet upstream from the junction with West Branch Brook in Heath, Massachusetts.

Heath, Massachusetts U.S.G.S. Quadrangle

Latitude: 42°43'10" Longitude: 72°50'54"

Facilities Affected:

None below elevation 1600.

Geologic Conditions:

Both abutments are poorly graded sand and gravel terrace and shallow to either glacial till or bedrock. Surficial deposits are gravel terrace and glacial till. Streambed material is cobbles. Depth to bedrock in the foundation is estimated to be from 20 to 25 feet. Waterholding capabilities appear to be poor. Leakage is expected through both abutments. Borrow material for dam construction was located near the site.

Engineering Notes:

The right abutment is recommended for the emergency spillway location. If the site is developed to elevation 1585 feet, a dike will be required to the northwest of the reservoir.

Location:

On Underwood Brook about 1,200 feet upstream of Stage Road in Heath. Massachusetts.

Heath, Massachusetts U.S.G.S. Quadrangle

Latitude: 42°42'30" Longitude: 72°49'15"

Facilities Affected:

None below elevation 1400.

Geologic Conditions: The left abutment is a poorly graded sand and gravel terrace; swampy at the toe. The right abutment is probably a gravel terrace at the low elevations and glacial till, shallow to schist at higher elevations. The surficial deposits are gravel terrace, glacial till, and schist. In outcrops the rock is highly fractured. There is schist outcropping in the stream. Streambed material is cobbles. Waterholding capabilities appear to be poor. Leakage is expected in both abutments. Pervious borrow material for dam construction was located near the site; impervious material was not located.

Engineering Notes:

The left abutment is recommended for the emergency spillway location. The borrow material can be used in constructing the outer shell of the dam.

SITE DE-1503

Location:

About 6500 feet north along York Road from Foundry Village in Colrain, Massachusetts, then about 1200 feet north to an un-named brook.

Colrain, Massachusetts U.S.G.S. Quadrangle
Latitude: 42°41'41" Longitude: 72°43'04"

None below elevation 1070.

Facilities Affected:

Geologic Conditions:

The left abutment is a glacial till with a gravel terrace about 6 feet deep about 10 feet above the streambed. The right abutment is glacial till and shallow to bedrock. The surficial deposits are a gravel terrace, glacial till and grey schist. Rock outcrops are moderately fractured. Streambed material is glacial till and boulders. Depth to bedrock in the foundation is estimated to be from 40 to 50 feet. Waterholding capabilities appear to be poor to fair. Leakage is expected through the gravel terrace on the left abutment. Borrow material for dam construction was located near the site.

Engineering Notes:

The left abutment is recommended for the emergency spillway location. Waterholding capabilities might be improved by a cutoff through the gravel terrace on the left abutment.

Location:

About 4000 feet north along York Road from Foundry Village in Colrain, Massachusetts then about 1000 feet east to an un-named brook.

Colrain, Massachusetts U.S.G.S. Quadrangle

Latitude: 42°41'00" Longitude: 72°42'55"

None below elevation 900.

Facilities Affected:

Geologic Conditions:

Both abutments are grey schist bedrock with swamp deposits low on both abutments. The surficial deposits are swamp and grey schist bedrock. The rock outcrops are moderately fractured. Streambed materials are bedrock and boulders. Grey schist is at ground surface. Waterholding capabilities appear to be good. Borrow material for dam construction was located near the site.

Engineering Notes:

The left abutment is recommended for the emergency spillway location.

SITE DE-1505

Location:

On Burton Brook about 600 feet upstream of Stone Hill Road, in Heath Massachusetts.

Heath, Massachusetts U.S.G.S. Quadrangle

Latitude: 42°43'56" Longitude: 72°51'50"

Facilities Affected:

Facilities
Stone Hill Road

Elevation 1670

Geologic Conditions: The left abutment is poorly graded sand and gravel terrace at low elevations, and thin discontinuous englacial drift-shallow to bedrock at high elevations with grey gneiss bedrock outcrops. The right abutment is gravel terrace at low elevations and silty sand glacial till at high elevations. The surficial deposits are gravel terrace, glacial till, englacial drift and grey gneiss bedrock. Rock outcropping is slightly jointed. Streambed material is cobbles. Depth to bedrock in the foundation is estimated to be from 10 to 20 feet. Waterholding capabilities appear to be poor. Leakage is expected through both abutments. Borrow material for dam construction was located near the site.

Engineering Notes:

The left abutment is recommended for the emergency spillway location. Waterholding capabilities might be improved by a cutoff through the entire foundation.

Location:

On Sanders Brook about 250 feet upstream of State Farm Road in Colrain, Massachusetts.

Heath, Massachusetts U.S.G.S. Quadrangle

Latitude: 42°43'53" Longitude: 72°48'32"

Facilities Affected:

None below elevation 1500,

Geologic Conditions: Both abutments are poorly graded sand and gravel with a gravel terrace at high elevations and grey schist bedrock at low elevations. The surficial deposits are grey schist and gravel terrace. Rock outcropping is moderately fractured. Streambed materials are bedrock and boulders. Waterholding capabilities appear to be poor to fair. Leakage is expected through the gravel on both abutments. Borrow material for dam construction was located near the site.

Engineering Notes:

The right abutment is recommended for the emergency spillway location.

Public Ownership:

Below elevation 1,500 feet, approximately 1/3 of the site lies within the Colrain State Forest.

SITE DE-1507

Location:

On West Branch Brook about 200 feet downstream from the confluence with Dickinson Brook in Heath, Massachusetts.

Heath, Massachusetts U.S.G.S. Quadrangle

Latitude: 42°h2'41" Longitude: 72°50'38"

Facilities Affected:

Facilities	Elevation
Steel tower high tension	,
lines	1470
Telephone lines	
(2 wire)	1470
Electric lines	
(3 wires)	1470

Geologic Conditions: The left abutment is a glacial till, shallow to bedrock. High on the right abutment is glacial till with sand and gravel at the toe of the slope. The surficial deposits are terrace sand and gravel and silty sand. The bedrock is moderately fractured in outcrops. The foundation shows gneiss outcropping. Streambed material is cobbles. Waterholding capabilities appear to be fair. Leakage is expected through the lower portion of the right abutment. Borrow material for dam construction was located near the site.

Engineering Notes:

Preliminary structure designs indicate that a concrete chute spillway will probably be required at this site. Waterbolding capabilities might be improved by a cutoff through the sand and gravel on the right abutment.

Location:

On West Branch Brook about 3,750 feet downstream of Stage Road in Heath, Massachusetts.

Heath, Massachusetts U.S.G.S. Quadrangle

Latitude: 42°41'55" Longitude: 72°49'46"

Facilities Affected:

Facilities
House & barn
House, garage, barn
School
Electric lines (2 wire)
Stage Road
Elevation
1425
1390
1380
1380

Geologic Conditions:

Both abutments are poorly graded sand and gravel terrace and englacial drift. High on the right abutment material is glacial till. The surficial deposits are a gravel terrace and englacial drift. Streambed material is cobbles. Depth to bedrock in the foundation is estimated to be from 15 to 20 feet. Waterholding capabilities appear to be poor. Leakage is expected through both abutments and the foundation. Borrow material for dam construction was located near the site.

Engineering Notes:

Preliminary structure designs indicate that a concrete chute spillway will probably be needed at this site.

SITE DE-1509

Location:

On Davenport Brook about 550 feet downstream from Swamp Road in Heath, Massachusetts.

Heath, Massachusetts U.S.G.S. Quadrangle

Latitude: 42°40'30" Longitude: 72°47'55"

Facilities Affected:

Facilities	Elevation
Camp	1630
2 wire telephone line	1628
6 wire high tension line	1628
5 wire electric line	1625
Colrain Brook Road	1625
9 wire electric line	1620
Swamp Road	1620

Geologic Conditions: The left abutment is thin discontinuous glacial till with outcrops of schist at high elevations, and glacial till at low elevations. The right abutment is glacial till shallow to grey schist. The valley floor is a swamp. Surficial deposits are swamp, glacial till and grey schist. Rock outcrops are moderately fractured. Streambed material is cobbles. Depth to bedrock in the foundation is estimated to be from 20 to 25 feet. Waterholding capabilities appear to be good. Borrow material for dam construction was located near the site.

SITE DE-1509 (Cont'd)

Engineering Notes:

The left abutment is recommended for the emergency spillway location.

SITE DE-1510

Location:

On the West Branch of the North River about 2,100 feet upstream of Archambo Road Bridge and Clark Road intersection in Colrain, Massachusetts.

Heath, Massachusetts U.S.G.S. Quadrangle

Latitude: 42°41'42" Longitude: 72°45'52"

Facilities
Affected:

Affected:

Garage
Storage shed
3 wire electric line

Adamsville Road

Geologic Conditions:

The left abutment is grey schist bedrock overlain by thin discontinuous glacial till. The right abutment is grey schist with poorly graded sand and gravel terrace at high elevations. The surficial deposits are glacial till, gravel terrace and grey schist. The rock outcrops are moderately fractured. Streambed material is bedrock and boulders. Bedrock is at the ground surface. Waterholding capabilities appear to be fair. Leakage is expected through the gravel on the right abutment. Borrow material for dam construction was located near the site.

Elevation

825 815

810

810

810

Engineering Notes;

Preliminary structure designs indicate that a concrete chute spillway will probably be needed at this site. Waterholding capabilities might be improved by a cutoff through the gravel terrace on the right abutment.

Location:

On Spur Brook approximately 1100 feet downstream of Wilson Hill Road in Colrain, Massachusetts.

Colrain, Massachusetts U.S.G.S. Quadrangle

Latitude: 42°43'22" Longitude: 72°44'37"

Facilities Affected:

Thompson Road 1300

2 wire electric line 1300

Telephone cable (underground) 1300

Geologic Conditions: The left abutment is glacial till with grey schist outcropping at high elevations. The right abutment is a glacial till and probably shallow to bedrock. The surficial deposits are glacial till and grey schist. Rock outcropping is moderately fractured. Streambed materials are cobbles and boulders. Depth to bedrock in the foundation is estimated to be from 15 to 25 feet. Waterholding capabilities appear to be good. Borrow material for dam construction was located near the site.

Engineering Notes:

The left abutment is recommended for the emergency spillway location.

SITE DE-1512

Location:

On West Branch of the North River about 300 feet upstream of Archambeault Road in Colrain, Massachusetts.

Heath, Massachusetts U.S.G.S. Quadrangle

Latitude: 42°41'00" Longitude: 72°45'07"

Facilities Affected:

Facilities	Elevation
House & 2 barns	750
2 houses	750
House	740
3 houses & 3 barns	735
Trailer & barn	725
Adamsville Road	710
3 wire electric line	710
Old house & 3 barns	700

Geologic Conditions: Both abutments are poorly graded sand and gravel with discontinuous glacial till and schist at high elevations on the left abutment. Rock outcrops are moderately fractured. Streambed materials are boulders and bedrock. Bedrock is at the ground surface. Water-holding capabilities appear to be poor. Leakage is expected through both abutments and the foundation. Pervious borrow material for dam construction was located near the site; impervious material was not located.

SITE DE-1512 (Cont'd)

Engineering Notes:

Preliminary structure designs indicate that a concrete chute spillway will probably be needed at this site.

SITE DE-1513

Location:

On East Branch of the North River about 2200 feet downstream of Franklin Hill Road in Colrain, Massachusetts.

Colrain, Massachusetts U.S.G.S. Quadrangle

Latitude: 42°42'22" Longitude: 72°41'57"

Facilities Affected:

Facilities	Elevation
Barn, house & garage	750
House, chicken house,	
garage	745
2 houses, 3 barns, silos	71,2
2 houses	740
House & swimming pool	735
3 wire electric line	730
3 houses	725
Sugar house	720
House & barn	718
House & barn	710
House, garage, barn	705
House	702
House, barn, garage	692
Trailer	690
House, antique shop, barn	685
House	680
Franklin Hill Road	680
3 wire electric line	680
Jacksonville Road	675
5 wire electric line	675

Geologic Conditions: The left abutment is grey schist bedrock. The right abutment is poorly graded sand and gravel at low elevations and a grey schist at higher elevations. Surficial deposits are gravel terrace and grey schist. Rock outcrops are moderately fractured. Streambed material is boulders and bedrock. Waterholding capabilities appear to be fair. Leakage is expected through the sand and gravel on the right abutment. Pervious borrow material for dam construction was located near the site. Impervious material was not located.

Engineering Notes:

A rock-cut emergency spillway on either abutment is recommended. Waterholding capabilities might be improved by a cutoff through the sand and gravel on the right abutment.

Location:

On East Branch of the North River about 400 feet upstream of Roberts Road in Colrain, Massachusetts.

Colrain, Massachusetts U.S.G.S. Quadrangle

Latitude: 42°41'26" Longitude: 72°41'36"

Facilities Affected:

Facilities Elevation (See Site DE-1513 for facilities above elevation 655 feet)

House, chicken farm	650
House	640
Jacksonville Road	635
Electric lines (3 lines)	635

Geologic Conditions: Both abutments are a poorly graded sand and gravel with a gravel terrace at low elevations and schist at the surface at higher elevations. The surficial deposits are gravel terrace and grey schist. Rock outcrops are slightly jointed. Streambed materials are cobbles and boulders. Depth to bedrock in the foundation is estimated to be from 15 to 25 feet. Waterholding capabilities appear to be poor. Leakage is expected through both abutments. Borrow material for dam construction was located near the site.

Engineering Notes:

The left abutment is recommended for the emergency spillway location. Waterholding capabilities might be improved by a cutoff through the sand and gravel on the abutments.

SITE DE-1517

Location:

On West Branch Brook about 3200 feet downstream from Underwood Hill Road in Heath, Massachusetts.

Heath, Massachusetts U.S.G.S. Quadrangle

Latitude: 42°43'21" Longitude: 72°51'21"

Facilities Affected:

C.	
Facilities	Elevation
2 houses	1600
House	1580
Sugar house	1565
House	1560
High tension lines (steel	
towers)	1560
Telephone lines (2 wires)	1560 ·
Electric lines (3 wires)	1560
House, garage, 2 barns	1557
3 barns	1555
Number Nine Road	1545
Electric lines (4 wires)	1545

SITE DE-1517 (Cont'd)

Geologic Conditions: Both abutments are outwash sand and gravel but may be shallow to glacial till. The surficial deposits are swamp, outwash sand and gravel and glacial till. Streambed materials are silt and sand. Depth to bedrock in the foundation is estimated to be from 15 to 25 feet. Waterholding capabilities appear to be poor. Leakage is expected through both abutments and the foundation. Borrow material for dam construction was located near the site.

Engineering Notes:

This is Site VTMLE2-1 that was included in the Comprehensive Study of the Connecticut River Basin, U.S. Dept. of Agriculture, June, 1970. The east abutment is recommended for the emergency spillway location. If the site is developed to elevation 1585 feet, a dike will be required to the northeast of the reservoir. An extensive cutoff probably would be required in the foundation and abutments to cut off leakage.

SITE DE-15A Crouch Dam (McLeod Pond)

Location:

On Meadow Brook approximately 5200 feet upstream from Stacey Road in Colrain, Massachusetts.

Colrain, Massachusetts-Vermont Quadrangle

Surface	Surface Area	Height of	Draina	ge Area
Elevation	(Acres)	Dam (Ft.)	Acres	Sq. Mi.
1092	35	15	385	0.60
D : : : 7	There are a 2 are			1

Potential for Expansion:

Expansion would be limited by the small drainage area.

Remarks:

The dam is a 12 foot concrete weir built on ledge. The water is also held back by small concrete dikes, 2 to 3 feet high, and by small earthen dikes. The concrete shows some cracking. Water is leaking out low areas around the reservoir. The reservoir may be a natural depression with unusual amounts of rock outcropping.

Ownership and Use:

The reservoir is owned by the Massachusetts Department of Natural Resources and is used for recreation.



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0.0.0 1270 16 4736 46.3 * 846.0 E 250 4.6 2110 * 850.5 19 * 853.3 53 140 * 871.0 170 170 180 180.1 15.0 170 180.0 180.1 16.4 180.0 180.1 180.0 180.1 180.0 180.1 180.0 180.1 180.0 180.1 180.0 180.0 180.1 180.0 1	00.0 7 4.1 3410 16 47360 46.3 * 9 11.0 1720 26 3942C 64.3 * 1 18.0 1270 31 39060 77.1 * 2 25.0 1130 36 42060 88.1 * **********************************	•	*
7 4.1 3410 16 47360 46.3 * 898.8 E 764 8.7 1590 * 861.1 24 * 864.1 64 231 * 811.0 1720 31 39060 77.1 * 893.8 E 777 14.6 1300 * 895.0 43 * 897.5 738 * 811.0 1270 31 39060 77.1 * 893.8 E 1182 22.2 1040 * 896.0 35 * 897.5 97 738 * 825.0 1130 36 42060 88.1 * 892.6 E 1515 28.4 1000 * 895.0 43 * 897.5 97 738 * 835.0 1130 36 42060 88.1 * 892.6 E 1515 28.4 1000 * 895.0 43 * 897.5 97 738 * 835.0 1130 36 42060 88.1 * 892.6 E 1515 28.4 1000 * 895.0 43 * 897.5 97 738 * 835.0 1130 81.0 * 895.0 43 * 897.5 97 738 * 897.5 97 7	7 4.1 3410 16 47360 46.3 * 9 11.0 1720 26 3942C 64.3 * 1 18.0 1270 31 39060 77.1 * 3 25.0 1130 36 42060 88.1 * ***********************************	19 *	140 * *
11.0 1720 26 3942C 64.3 * 80.08 E 1182 28.4 1000 * 895.0 43 * 897.5 97 738 * 888.6 89 569 * 888.0 89 569 * 888.	11.0 1720 26 3942C 64.5 ** 118.0 1270 31 39060 77.1 ** 25.0 1130 36 MI = 614 AC 6 (1) STREAM WATER QUALITY (B) 10 7.0 1820 25 26080 43.4 ** 1 7.0 1820 25 26080 43.4 ** 1 8 9.1 1520 28 24930 47.5 ** 1 B 9.1 1520 28 24930 47.5 ** 1 C (1) STREAM WATER QUALITY (B) 10 0 0.0 0 1 12.8 ** 1 4.8 2330 24 2530 44.2 ** 1 2 11.5 1230 41 19050 55.5 ** 1 3 18.2 980 51 19280 63.5 ** 1 3 25.0 850 59 19870 70.4 ** 1 ********************************	24 *	231 *
1 18.0 1270 31 39900 71.1 * 892.6 E 1515 28.4 1000 * 895.0 43 * 897.5 97 728 * 878.5 100 8 89.1 * 892.6 E 1515 28.4 1000 * 895.0 43 * 897.5 97 728 * 878.5 100 8 89.1 * 892.6 E 1515 28.4 1000 * 895.0 43 * 897.5 97 728 * 878.5 100 8 89.1 * 892.6 E 1515 28.4 1000 * 895.0 43 * 897.5 97 728 * 878.6 100 8 89.1 * 892.6 E 1515 28.4 1000 * 895.0 43 * 897.5 97 728 * 87.0 182 8 8 1671.1 E 212 4.1 1730 * 1673.6 20 * 1676.3 41 82 * 87.0 1820 25 26080 43.4 * 1677.8 E 395 4.6 * 1430 * 1687.3 32 * 1689.8 55 176 * 88.5 170 192 27.0 1820 25 26080 43.4 * 1684.8 E 546 10.7 1190 * 1687.3 32 * 1689.8 55 176 * 88.5 170 192 27.0 1820 25 26080 43.4 * 1684.8 E 546 10.7 1190 * 1687.3 32 * 1689.8 55 176 * 88.5 170 192 27.0 1820 25 26080 43.4 * 1684.8 E 546 10.7 1190 * 1687.3 32 * 1689.8 55 176 * 88.5 170 192 27.0 1820 25 26080 47.5 * 1682.5 T 476 9.3 1490 * 1687.3 32 * 1689.8 55 176 * 88.5 170 192 27.0 1820 25 26080 47.5 * 1682.5 T 476 9.3 1490 * 1687.3 32 * 1689.8 55 176 * 88.5 170 192 8 170 100 100 100 100 100 100 100 100 100	1 18.0 1270 31 39060 76.1 * 3 25.0 1130 36 42060 88.1 * ***********************************	30 *	36(*
STREAM WATER QUALITY (B) 100-YR PRIN SPHY DESIGN STORM RUNDFF = 8.40 IN. PEAK FLOM = 8.40 I	**************************************	64 * *	728 *
DA= 0.96 SQ MI = 614 AC USGS QUAD-HEATH	DA = 0.96 SQ MI = 614 AC 0.00 2 Ream MATER QUALITY (B) 10 10 0.0 2 Ream MATER QUALITY (B) 10 4 3.4 2900 16 3152C 34.4 * 1 5 4.6 2310 19 2799C 37.9 * 1 7 0 1820 25 2608C 43.4 * 1 8 7.0 1820 25 2608C 43.4 * 1 B 7.0 1820 25 2608C 43.4 * 1 B 7.0 1820 25 2608C 43.4 * 1 C 1.1 5 0 28 2493C 47.5 * 1 A ********************************	*	*
DA= 0.96 SQ MI = 614 AC	DA = 0.96 SQ MI = 614 AC STREAM WATER QUALITY (B) 10 0.00 2 8.8 * 1 4 3.4 2900 16 3152C 34.4 * 1 5 4.6 2310 19 2799C 37.9 * 1 8 7.0 1820 25 2608C 43.4 * 1 8 9.1 1520 28 2493C 47.5 * 1 8 9.1 1520 28 2493C 47.5 * 1 0 0.0 1 0.0 1 12.8 * 1 1 4.8 2330 24 2539C 44.2 * 1 2 11.5 1230 41 19050 55.5 * 1 3 18.2 980 51 1928C 63.5 * 1 3 25.0 850 59 1987C 70.4 * 1 *********************************	**********	************
\$\text{c}\$ (1) \text{STREAM WATER QUALITY (B) 100-YR PRIN SPNY DESIGN STORM RUNDFF = 8.40 IN, PEAK FLOW = \$\text{*}\$ \$\te	00.0 2 8.8 * 1 4 3.4 2900 16 3152C 34.4 * 1 5 4.6 2310 19 2799C 37.9 * 1 8 7.0 1820 25 2608C 43.4 * 1 8 9.1 1520 28 2493C 47.5 * 1 8 9.1 1520 28 2493C 47.5 * 1 DA= 1.03 SQ MI = 659 AC 6 (1) STREAM WATER QUALITY (B) 10 1 4.8 2330 24 2539C 44.2 * 1 2 11.5 1230 41 19050 55.5 * 1 3 18.2 980 51 1928O 63.5 * 1 3 25.0 850 59 1987O 70.4 * 1 EMERGENCY SPILLWAY STORAGE AND COSTS A	ATITUDE 42-43-56	LONGITUDE 72-51-50
### 1671.1 E 212 4.1 1730 * 1673.6 20 * 1676.3 41 82 * 4 4.4 * 1677.8 E 354 6.8 1430 * 1680.3 27 * 1682.8 48 122 * 4.5 2900 16 3152C 34.4 * 1677.8 E 354 6.8 1430 * 1681.8 28 * 1684.3 49 131 * 4.5 2310 19 2799C 37.9 * 1679.3 E 390 7.6 1390 * 1687.3 32 * 1689.0 55 177 * 4.5 1820 25 268C 43.4 * 1682.5 T 476 9.3 1490 * 1687.3 32 * 1689.0 55 177 * 4.5 1820 25 268C 47.5 * 1682.5 T 476 9.3 1490 * 1687.3 32 * 1689.0 55 177 * 4.5 1820 28 2493C 47.5 * 1682.5 T 476 T 476 T 477	0 0.0	# 8.40 IN.	IK FLOW =
4 3.4 2900 12 34.4 1677.8 E 354 6.8 1430 1680.3 27 1684.3 49 132 4.5 4.6 2310 19 27990 37.9 1677.8 E 354 6.8 1430 1680.3 27 1684.3 49 131 22 43.6 2310 19 27990 37.9 1679.8 E 354 6.8 1430 1687.3 32 1684.3 49 131 152 28 24930 47.5 1682.5 T 476 9.3 1490 1687.3 32 1689.8 55 176 18 28 24.3 15.0 28 24930 47.5 1682.5 T 476 9.3 1490 1687.3 32 1689.8 55 176 18 28 24.3 15.0 28 24930 47.5 1682.5 T 476 9.3 1490 1687.3 32 1689.8 55 176 17 18 18 18 18 18 18 18 18 18 18 18 18 18	0 0.0 0.0 16 3152C 34.4 * 1 1 2 4.6 2310 19 2799C 37.9 * 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1		
4 3.4 2900 16 3152C 34.4 * 1677.8 E 354 6.8 1430 * 1680.3 27 * 1682.8 48 122 * 4.6 2310 19 27990 37.9 * 1679.3 E 360 7.6 1390 7.6 1387.3 32 * 1690.0 55 174 * 1684.8 E 546 10.7 1190 * 1687.3 32 * 1690.0 55 176 * 178 * 178 * 178 * 178 * 178 * 178 * 178 * 1887.3 32 * 1689.8 55 176 * 178 * 1888.8 * 1.03 50 MI = 659 AC 0.565 Quad-Heath	4 3.4 2900 16 3152C 34.4 * 1 5 4.6 2310 19 2799C 37.9 * 1 8 7.0 1820 25 2608C 43.4 * 1 8 9.1 1520 28 2493C 47.5 * 1	* 02	82 *
5 4.6 2310 19 27990 37.9 * 1679.3 E 390 7.6 1390 * 1681.8 28 * 1684.3 49 131 * 18 7.0 1820 25 26080 43.4 * 1684.8 E 546 10.7 1190 * 1687.3 32 * 1690.0 55 17 * 18 9.1 1520 28 24930 47.5 * 1684.8 * 476 10.7 1190 * 1687.3 32 * 1689.8 55 17 * * * * * * * * * * * * * * * * * *	6 4.6 2310 19 27990 37.9 * 1 8 7.0 1820 25 26080 47.5 * 1 8 9.1 1520 28 24930 47.5 * 1 **********************************	27 *	122 *
8 9.1 1520 25 2608C 43.4 * 1684.8 E 546 10.7 1190 * 1687.3 32 * 1690.0 55 177 * * * * * * * * * * * * * * * * * *	8 7.0 1820 25 2608C 43.4 * 1 8 9.1 1520 28 2493C 47.5 * 1 8 *********************************	# 87	121 *
**************************************	**************************************	32 *	177 *
**************************************	**************************************	* 70	*
DA= 1.03 SQ MI = 659 AC USGS QUAD-HEATH C(1) STREAM WATER QUALITY (B) 100-YR PRIN SPWY DESIGN STORM RUNOFF = 8.40 IN, PEAK FLOW =	E-DE-1506 DA= 1.03 SQ MI = 659 AC USGS QUAD-HEATH ITE RATING (1) STREAM WATER QUALITY (B) 100-YR PRIN SPWY DESIGN STORM RUNDF 2.8 0 0.0 1 12.8 * 1462.3 E 228 4.1 1840 * 1464.4 4.1 261 4.8 2330 24 25390 44.2 * 1470.6 E 456 8.3 1330 * 1473.1 5.6 632 11.5 1230 41 19050 55.5 * 1478.1 E 748 13.6 1040 * 1480.4 3.6 1003 18.2 980 51 19280 63.5 * 1486.1 E 1136 20.7 860 * 1488.4 0.4 1373 25.0 850 59 19870 70.4 * 1492.9 E 1539 28.0 760 * 1495.4 EXAMPLE WAS ARRESTED ON 1971 S.C.S. DESIGN CRITERIA AND COST DATA. (2) EMERGENCY SPILLWAY STORAGE AND COST ARE BASED ON TOTAL STORAGE, INCLUD	************	***
TIE RATING (1) STREAM WATER QUALITY (B) 100-YR PRIN SPWY DESIGN STORM RUNOFF = 8.40 IN, PEAK FLOM = 322 CFS * * * * * * * * * * * * * * * * * * *	TTE RATING (1) STREAM WATER QUALITY (B) 100-YR PRIN SPWY DESIGN STORM RUNDF 2.8 0 0.0 1 12.8 * 1462.3 E 228 4.1 1840 * 1464.4 4.1 261 4.8 2330 24 25390 44.2 * 1470.6 E 456 8.3 1330 * 1473.1 5.6 632 11.5 1230 41 19050 55.5 * 1478.1 E 748 13.6 1040 * 1480.4 3.6 1003 18.2 980 51 19280 63.5 * 1486.1 E 1136 20.7 860 * 1488.4 0.4 1373 25.0 850 59 19870 70.4 * 1492.9 E 1539 28.0 760 * 1495.4 ***********************************	ATITUDE 42-43-53	
### ##################################	2.8 0 0.0 1 12.8 * 1462.3 E 228 4.1 1840 * 1464.0 4.1 261 4.8 2330 24 25390 44.2 * 1470.6 E 456 8.3 1330 * 1473.1 5.6 632 11.5 1230 41 19050 55.5 * 1478.1 E 748 13.6 1040 * 1480.0 3.6 1003 18.2 980 51 19280 63.5 * 1486.1 E 1136 20.7 860 * 1488.0 0.4 1373 25.0 850 59 19870 70.4 * 1492.9 E 1539 28.0 760 * 1495.0 E	= 8.40 IN,	= 325
2.8 0.00 1 12.8 * 1462.3 E 228 4.1 1840 * 1464.6 25 * 1466.9 47 98 * * * * * * * * * * * * * * * * * *	2.8 0 0.0 1 12.8 * 1462.3 E 228 4.1 1840 * 1464.6 4.1 261 4.8 2330 24 25390 44.2 * 1470.6 E 456 8.3 1330 * 1473.1 5.6 632 11.5 1230 41 19050 55.5 * 1478.1 E 748 13.6 1040 * 1480.6 3.6 1003 18.2 980 51 19280 63.5 * 1486.1 E 1136 20.7 860 * 1488.8 5.1 1373 25.0 850 59 19870 70.4 * 1492.9 E 1539 28.0 760 * 1495.2 E 7.1 1025 28.0 760 * 1495 28.0 F 7.1 1025 28.0 F 7.1	*	*
4.1 261 4.8 2330 24 2539C 44.2 * 1470.6 E 456 8.3 1330 * 1473.1 37 * 1475.4 55 157 * 0.37 5.6 632 11.5 1230 41 19050 55.5 * 1478.1 E 748 13.6 1040 * 1480.6 47 * 1482.4 62 222 * 0.62 3.6 1003 18.2 980 51 19280 63.5 * 1486.1 E 1136 20.7 860 * 1488.5 56 * 1490.6 71 319 * 0.77 0.4 1373 25.0 850 59 19870 70.4 * 1492.9 E 1539 28.0 760 * 1495.3 66 * 1497.6 78 419 * 0.86 0.4 1373 25.0 850 059 19870 70.4 * 1492.9 E 1539 28.0 760 * 1495.3 66 * 1497.6 78 419 * 0.86 0.4 1373 25.0 850 19870 70.5 * 1486.1 E 1136 20.7 860 * 1495.3 66 * 1490.6 71 319 * 0.77 0.4 1373 25.0 850 19870 70.5 * 1492.9 E 1539 28.0 760 * 1495.3 66 * 1490.6 71 80.8 * **********************************	4.1 261 4.8 2330 24 2539C 44.2 * 1470.6 E 456 8.3 1330 * 1473.1 5.6 632 11.5 1230 41 19050 55.5 * 1478.1 E 748 13.6 1040 * 1480.6 3.6 1003 18.2 980 51 19280 63.5 * 1486.1 E 1136 20.7 860 * 1488.5 0.4 1373 25.0 850 59 19870 70.4 * 1492.9 E 1539 28.0 760 * 1495.5 *	25 *	* * 86
5.6 632 11.5 1230 41 19050 55.5 * 1478.1 E 748 13.6 1040 * 1480.6 47 * 1482.4 62 222 * 0.62 3.6 1003 18.2 980 51 19280 63.5 * 1486.1 E 1136 20.7 860 * 1488.5 56 * 1490.6 71 319 * 0.77 0.4 1373 25.0 850 59 19870 70.4 * 1492.9 E 1539 28.0 760 * 1495.3 66 * 1497.6 78 419 * 0.86 * * ********************************	5.6 632 11.5 1230 41 19050 55.5 # 1478.1 E 748 13.6 1040 # 1480.6 3.6 1003 18.2 980 51 19280 63.5 # 1486.1 E 1136 20.7 860 # 1488.5 0.4 1373 25.0 850 59 19870 70.4 # 1492.9 E 1539 28.0 760 # 1495.5 #***********************************	37 *	157 #
3.6 1003 18.2 980 51 19280 63.5 * 1486.1 E 1136 20.7 860 * 1488.5 56 * 1490.6 71 319 * 0.77 0.4 1373 25.0 850 59 19870 70.4 * 1492.9 E 1539 28.0 760 * 1495.3 66 * 1497.6 78 419 * 0.86 * * * * * * * * * * * * * * * * * * *	3.6 1003 18.2 980 51 19280 63.5 # 1486.1 E 1136 20.7 860 # 1488.5 0.4 1373 25.0 850 59 19870 70.4 # 1492.9 E 1539 28.0 760 # 1495.2 ####################################	# 24	222 #
0.4 1373 25.0 850 59 19870 70.4 * 1492.9 E 1539 28.0 760 * 1495.3 66 * 1497.6 78 419 * 0.86 * * * * * * * * * * * * * * * * * * *	0.4 1373 25.0 850 59 19870 70.4 # 1492.9 E 1539 28.0 760 # 1495.3 # # # # # # # # # # # # # # # # # # #	* 95	319 #
**************************************	* ************************************	# 99	419 * 0
ES - (1) COSTS ARE BASED ON 1971 S.C.S. DESIGN CRITERIA AND COST DATA. (2) EMERGENCY SPILLWAY STORAGE AND COSTS ARE BASED ON TOTAL STORAGE, INCLUDING BENEFICIAL POOL. (3) EMERGENCY SPILLWAY TYPE CODE- C=CONCRETE CHUTE, D=CONCRETE DROP, E=EXCAVATED, T= TWO SPILLWAYS, N= NONE (4) TABULAR DATA ARE BASED ON PRELIMINARY INFORMATION. FIGURES SHOWN ARE PRIMARILY FOR COMPARISON PURPOSES.	(2) EMERGENCY SPILLWAY STORAGE AND COSTS ARE BASED ON TOTAL STORAGE, INCLUD	******	******
EMERGENCY SPILLWAY STORAGE AND COSTS ARE BASED ON TOTAL STORAGE, INCLUDING BENEFICIAL POOL. EMERGENCY SPILLWAY TYPE CODE— C=CONCRETE CHUTE, D=CONCRETE DROP, E=EXCAVATED, T= TWO SPILLWAYS, N= NON TABULAR DATA ARE BASED ON PRELIMINARY INFORMATION. FIGURES SHOWN ARE PRIMARILY FOR COMPARISON PURPOSES	EMERGENCY SPILLWAY STORAGE AND COSTS ARE BASED ON TOTAL STORAGE,		
EMERGENCY SPILLWAY TYPE CODE- C=CONCRETE CHUTE, D=CONCRETE DROP, E=EXCAVATED, T= TWO SPILLWAYS, N= NON TABULAR DATA ARE BASED ON PRELIMINARY INFORMATION. FIGURES SHOWN ARE PRIMARILY FOR COMPARISON PURPOSES	EMEDIENCY COTT HAY TYDE CORE CLONEDETE CHITE PLONEDETE DECO	NG BENEFICIAL PC	01.
TABULAR DATA ARE BASED ON PRELIMINARY INFORMATION. FIGURES SHOWN ARE PRIMARILY FOR COMPARISON PURPOSES	EMERGENCY SPILLWAY 17PE CUUE- C=CUNCKEIE CHOIE; U=CUNCKEIE DKUP;	ATED, T= TWO SPI	AYS, N=
· 一个一个一个一个一个一个一个一个一个一个一个一个一个一个一个一个一个一个一个	TABULAR DATA ARE BASED ON PRELIMINARY INFORMATION. FIGURES SHOWN	MARILY FOR COMPA	PURPOSES

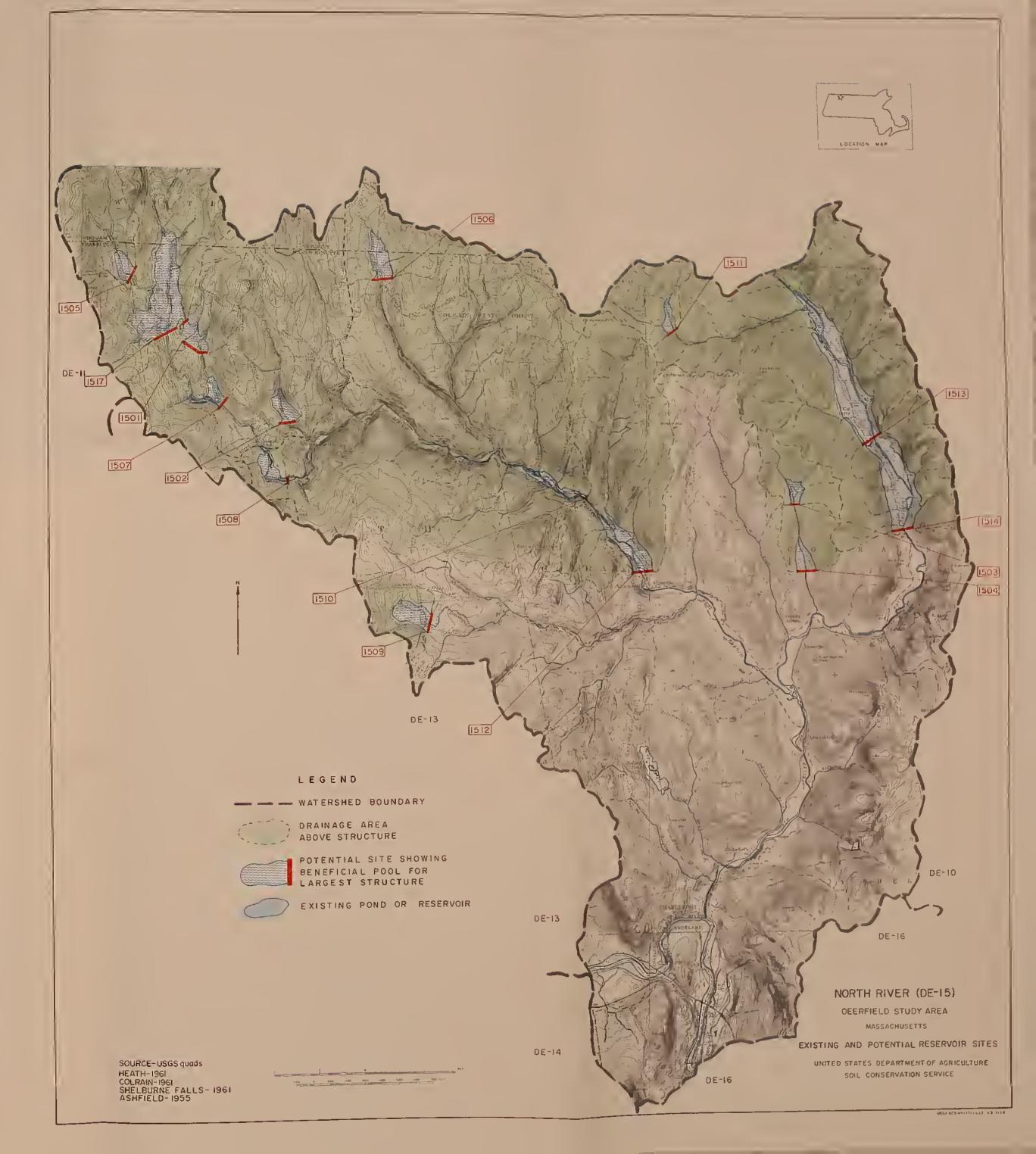
	* SAFE * YIELD	** AT 95 *PERCENT	*CHANCE	* (MGD)	2-41 LONGITUDE 72-50-38 - PEAK FIOW = 1516 FFS		* 1.07	* 1.25 * 1.39	* *		1600 CFS		* 0.52	* 1.68	1	# T * *		k L	179.CFS		*****	* 0.18	* 0.26	* 0.42		GN CRITERIA AND COST DATA.		NONE	NOT TO BE	
		* .	(1000	(Y)	LONGITUDE		246	256		中中中中中中中中中中中中	-		54	54	200	90		TOTAL ONC	K FLOW =	!	45	51	2,8	112				N=N	AND ARE N	
	DAM	* 1	HC	E	41 LO	,				***	PEAK (64	49		4			PEAK					31			P001.	PILLW	LY, A	
		*	ELEV	(MSL	42-4 30 IN		1497.4	1498.4			- 42-41-55 LUNGI			1383.8	200	1382.6			30 IN, PEAK FLOW		1627.3	1629.1	- 1	1639.1			BENEFICIAL POOL.	FOR COM	ENTS ON	
RIVER	* * & # W	* * '	AKEA *	(AC) *		, ,	35 *	37 *	* *	***	FF = 8.	1	54 #	54 *	* 70	* 40	* *		FF = 8.		59 *	39 #	* 75				3 BENE	red, T	VEL OP M	
SUBWATERSHED-NORTH RIVE	* DESIGN * HIGH WATER	*	erev	(MSL)	× 14	7 702	1494.6	1496.0		****	RUNOFF		1379.6	1380.0	1378.9	1380.0			RUNOFF		1624.5	1627.0	1630.4	1636.8			INCLUDING	E=EXCAVATED, T= TWO SPILLWAYS, ARE PRIMARITY FOR COMPARISON P.	TO SHOW VARIATION BETWEEN DEVELOPMENTS ONLY,	ACQUISITION.
SHED	* *	*****	* *	* (\$)	ATORM	* 1	10 *	2150 * 1930 *	* *	*	STORM	*	1880 *	1440 *		* 0811	* * *		STORM	*	1840 *	*	* 1		*		GE,		N BET	
BWATER	МАУ	**************************************	A C		NGI					****	HEAIH SPWY DESIGN STORM				1	0				1			7			AND COST DATA		ETE DE	RIATIO	LAND
SU	<u>ا</u> م	******** STORAGE	CRESI	Z	HEATH SPEY DESIGN			7 1.9		****	MY DE		7	1 1.2	7	7.	***	A T 1.1	SPWY DESIGN			0 6.1		0 22.0		COST	ON TOTAL	CONCRETE	OW VA	SELECTION OR
1	EMERGENCY	STORAGE	ک -	AC FT	QUAD-HEATH			617		***	PRIN SPMY		-	461			4		PRIN SPWY	1	Ì			680		ONA A		E D=	TO SH	LECTI
	EMERG	**************************************	ELEV TYPE	(MSL)	0 0	1 4	1483.6 T	1489.0 T	1	*	OSGS QU		- 1	1369.5 T	٦,	13/6.3	***************************************		OO-YR PR		ı		- 1	1635.0 E		GN CRITERIA	ARE BASED	CRETE CHUTE, D=CONCRETE RY INFORMATION, FIGURES	.1 F00T	SITE
	* *	* *	* * *	* *	•	* 1	.5 *		* *	*		*	* 1	* :	*	* *			(B) 1	*	1.4 *	* 1 *	* *	k #				CONCRINARY	EST 0	FINAL
0 7		****** DEPTH	DAM	(FT)	= 3987 AC		63.5	69.0		****	0 4544 AC					41.3		371	_				22.0			O S	AND C	E- C=	NEAR	FOR FIN
ERFIE		COST/	SURF	(\$)	= I		56660	49750		***			21060	18020	12490	18420			QUALITY			15650	00611	9720		71 S.C	STURAGE	DE COD	THE THE	ACCURATE TO THAT ** DO NOT USE
REA-DI		* .	AREA	(AC)	6.23 SQ MI		22	32		***	FAM WATER		33	37	14	48			EAM WATER (2	20	24	55		01 NO	AY ST	AY TYI	HOWN	DO NO
STUDY AREA-DEERFIELD	BENEFICIAL POOL	******* COST	PER AC FT	(\$)	DA= 6.2	00 / 0	2790	2340		*****	UA= (.10 SU MI STRFAM WATER		2220	1650	1270	1280			STREAM			2500	1200	990		F BASED ON 1971 S.C.S.	Y SPILLWAY	EMERGENCY SPILLWAY TYPE CODE- C=CON TABULAR DATA ARF BASED ON PRELIMINA	-	ACC
1	ENEFI	* * * *	G E	Z			1.2	1.7		****	= = = = = = = = = = = = = = = = = = = =		0.8	1.1	7.1	1.1			(1)		0.0	4.0	0.0	17.2		COSTS ARE	EMERGENCY	RGENC	VATIO	CONSIDERED
1	20	* * * * * * * * * * * * * * * * * * * *	STORAG	AC FT	-1507		441	568 676		****	ی	1	309	404	464	069	***	00	ار		0	123		535		(1) COS	- 1	(3) EME		20
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SUMMARY DATA FOR POTENTIAL UPSTREAM RESERVOIR SITES

SUMMARY DATA FOR POTENTIAL UPSTREAM RESERV '8 SITES

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* 00		STORAGE	AC FT	**************************************	3713 5013 6313 8912	-1514 RATING (1)	5334 6554 7774	10215	TE-DE-1517 SITE RATING (1)	0 1139 2799	6120 2	(2) EMER (3) EMER (4) TABU (5) ELEV (6) TABU
***		ELEV	(WSL)	SITE RATIN	714.9 721.0 726.8 736.7	SITE RATIN	679.8 685.0 689.8	0.869	SITE RATIN	1543.8	1583.1	NOTES





DEERFIELD STUDY AREA SITE DATA FOR

Subwatershed DE-15, Deerfield River

This subwatershed covers about 45,800 acres in Greenfield, Deerfield, Shelburne, Conway, Ashfield and Buckland in Franklin County, and Goshen in Hampshire County. The main streams within this subwatershed are Bear River and South River which both originate in Ashfield and flow northeasterly to their confluences with the Deerfield River in Conway. The Deerfield River flows southeasterly to Deerfield and then northerly to Greenfield. Elevations range from 1843 feet in Ashfield to about 120 feet in Deerfield.

Geology within the subwatershed is predominantly characterized by schist bedrock overlain by 15 to 50 feet of glacial till, englacial drift, or outwash sand and gravel. Thirty-one potential reservoir sites and two existing reservoirs were studied.

SITE DE-1601

Location:

On Sluice Brook about 5300 feet upstream of the Mohawk Trail (Massachusetts Route 2) in Shelburne, Massachusetts.

Shelburne Falls, Massachusetts U.S.G.S. Quadrangle

Latitude: 42°35'51" Longitude: 72°42'22"

Facilities Affected:

None below elevation 990.

Geologic Conditions:

The left abutment is glacial till at the high elevations and poorly graded sand and gravel at the lower elevations. The right abutment is silty sand and gravel at the mid-elevations and glacial till at the higher elevations. The surficial deposits are gravel terrace, glacial till and schist. The rock outcrops are moderately jointed. There is schist outcropping in the valley floor at the dam site. Streambed materials are bedrock and gravel. Waterholding capabilities appear to be poor to fair. Leakage is expected through the left abutment. Borrow material for dam construction was located near the site.

Engineering Notes:

The left abutment is recommended for the emergency spillway location. Waterholding capabilities might be improved by a cutoff through the gravel on the left abutment.

Location:

On Dragon Brook about 2300 feet upstream from the Mohawk Trail, in Shelburne, Massachusetts.

Shelburne Falls, Massachusetts U.S.G.S. Quadrangle

Latitude: 42°35'43" Longitude: 72°41'36"

Facilities Facilities Elevation Affected: House 7010 The transfer House it restrained as the 1805 for a real section of person to a Little Mohawk Road (1200-1200) 775 The second 2 wire utilities across on the second se 735

Geologic Conditions: The left abutment is glacial till. The right abutment is glacial till to about 60 feet above the valley floor then it is a poorly graded sand and gravel outwash gravel terrace at higher elevations. surficial deposits are glacial till. Streambed materials are cobbles and boulders. Depth to bedrock in the foundation is estimated to be from 15 to 25 feet. Waterholding capabilities appear to be good.

inench and to mean There is a possibility of deakage high on the right out . overeas land leabutment of Borrow materials for dam construction was

Shelbarne ralls, hassachmerte 5.6.8. Quadronz

Notes:

en Control

Engineering Control This is Site MuF 1, that was included in the Comprehensive Study of the Connecticut River Basin, U.S. Dept. of Agriculture Quine 1970 The deft abutment is recommended for the emergency spillway location. If the site is the and developed to elevation 765 feet a dike will be required Geoldgic Gonditions: and porray graded of the southeast of the reservoir and porray graded of the southeast of the reservoir

mid-alevations and glacial till at the higher disvations. The surficial developed arts gravel terrace, glacial till

Location: Vistanshom On Drakes Brook about 700 feet downstream from Is The Polisy confluence with Sids Brook in Conway, Massachusetts.

bus doo ded are sterreden bedmeant? . Atis med addition of roof as a second Shelburne Falls. Massachusetts U.S.G.S. Quadrangle "72°441'01" Telle abutitude pelle 182°32'148!!!! Jeff abutitude: 72°444'01"

Facilities Affected:

need becased an aditoritation meb not thirdam count acilities Facilities Elevation 785 House & barn Warger Road I af Mandre Jie 7751 saly for a file of the Campathiours tank and attach to a 750 a

flat odf so levels Prersick Roaderson gd bevorga747 2 wire utilities . Jane 1471a

Geologic Conditions: Both abutments are glacial till with some thin outwash sand and gravel in some areas. The surficial deposits are swamp, silty sand and outwash sand and gravel. Streambed materials are sand and boulders. Depth to bedrock in the foundation is estimated to be from 40 to 50 feet. Waterholding capabilities appear to

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SITE DE-1603 (Cont'd)

Geologic

be fair. Leakage is expected through the outwash Conditions (Cont'd) sand and gravel in both abutments. Borrow material for dam construction was located near the site.

Engineering Notes:

This is Site M4F-3 that was included in the Comprehensive Study of the Connecticut River Basin, U.S. Dept. of Agriculture, June 1970. At the dam site there are remnants of an old breached rock and earth filled dam. The right abutment is recommended for the emergency spillway location. Waterholding capabilities might be improved by a cutoff through the outwash sand and gravel on both abutments.

SITE DE-1604

Location:

On Dragon Brook, 950 feet upstream from Reynolds Road in Shelburne, Massachusetts.

Shelburne Falls, Massachusetts U.S.G.S. Quadrangle Latitude: 42°36'41" Longitude: 72°41'29"

Facilities Affected:

2 wire telephone line crosses at about centerline of dam.

Geologic Conditions: The left abutment is glacial till with swamp deposits at lower elevations. The right abutment is schist bedrock at higher elevations, glacial till at middle elevations and swamp at lower elevations. The surficial deposits are swamp, glacial till and schist. Bedrock is highly fractured in outcrops. Streambed materials are cobbles and boulders. Depth to bedrock in the foundation is estimated to be from 15 to 25 feet. Waterholding capabilities appear to be good. Borrow material for dam construction was located near the site.

Engineering Notes:

The left abutment is recommended for the emergency spillway location.

Location:

On Schneck Brook about 2150 feet upstream from Wilder Hill Road in Conway, Massachusetts.

Shelburne Falls, Massachusetts U.S.G.S. Quadrangle

Latitude: 42°34'13" Longitude: 72°43'51"

Facilities Affected:

None below elevation 860.

Geologic Conditions: Both abutments are outwash sand and gravel with silty sand and shallow to bedrock high on the abutments. The surficial deposits are sand and gravel and silty sand. The bedrock is moderately fractured in outcrops. Streambed material is cobbles. Depth to bedrock in the foundation is estimated to be from 5 to 15 feet. Waterholding capabilities appear to be poor. Leakage is expected through both abutments and the foundation. Pervious borrow material for dam construction was located near the site; impervious material was not located.

Engineering Notes:

The right abutment is recommended for the emergency spillway location.

SITE DE-1606

Location:

On Schneck Brook about 100 feet upstream from Shirkshire Road in Conway, Massachusetts.

Shelburne Falls, Massachusetts U.S.G.S. Quadrangle

Latitude: 42°34'01" Longitude: 72°43'22"

Facilities Affected:

Facilities	Elevation
House, barn, other	
buildings	725
Camp	710
House & garage	705
Wilder Hill Road	695
5 wire utilities	695

Geologic Conditions:

The left abutment is a kame terrace, sand and gravel, with thin glacial till and shallow to bedrock. The right abutment is glacial till. The surficial deposits are swamp, silty sand and sand and gravel. The rock outcrops are moderately fractured. Streambed material is boulders. Depth to bedrock in the foundation is estimated to be from 5 to 15 feet. Waterholding capabilities appear to be fair. Leakage is expected through the left abutment. Borrow material for dam construction was located near the site.

Engineering Notes:

The left abutment is recommended for the emergency spillway location. If the site is developed to elevation 715 feet, a dike will be required to the west of the reservoir.

Location:

On Hawkes Brook about 750 feet downstream from the confluence with Great Brook in Shelburne, Massachusetts.

Shelburne Falls, Massachusetts U.S.G.S. Quadrangle

Latitude: 42°34'.28" Longitude: 72°40'32"

Facilities Facilities Elevation
Affected: South cemetery 540-545
South Road 532
Zera Fiske Road 515
Double power lines (7 wires,

4 wires, wooden poles) 515

Geologic Conditions:

The left abutment is glacial till with schist bedrock outcropping along the stream. The right abutment is a poorly graded sand and gravel or silty gravel, gravel terrace. The surficial deposits are gravel terrace, glacial till and schist. The rock outcrops are moderately fractured. There is schist outcropping in the stream. Streambed material is bedrock. Waterholding capabilities are fair. Leakage is expected through the right abutment. Borrow material for dam construction was located near the site.

Engineering Notes:

Preliminary structure designs indicate that a concrete chute spillway will probably be needed at this site.

SITE DE-1608

Location:

On Bear River about 100 feet downstream from Shelburne Falls Road in Conway, Massachusetts.

Shelburne Falls, Massachusetts U.S.G.S. Quadrangle

Latitude: 42°32'45" Longitude: 72°43'14"

Facilities Facilities Elevation
Affected: Shirkshire Road 605
High tension lines, steel
towers 6 wires 605
Telephone wire 605
Shelburne Falls Road 555
2 wire utilities 555

Geologic Conditions:

The left abutment is outwash sand and gravel. The right abutment is glacial till. The surficial deposits are outwash sand and gravel and glacial till. Streambed materials are cobbles and boulders. Depth to bedrock in the foundation is estimated to be from 15 to 20 feet. Waterholding capabilities appear to be fair. Leakage is expected through the left abutment. Borrow material for dam construction was located near the site.

SITE DE-1608 (Cont'd)

Engineering Notes:

Preliminary structure designs indicate that a concrete chute spillway will probably be needed at this site.

SITE DE-1609

Location:

On Drakes Brook about 1550 feet upstream from Baptist Corner Road in Ashfield, Massachusetts.

Shelburne Falls, Massachusetts U.S.G.S. Quadrangle

Latitude: 42°33'36" Longitude: 72°44'43"

Facilities Affected:

None below elevation 960.

Geologic Conditions: The left abutment is outwash sand and gravel. The right abutment is outwash sand and gravel at the toe of the abutment with glacial till at higher elevations. The surficial deposits are outwash sand and gravel and silty sand. Streambed material is boulders. Depth to bedrock is estimated to be from 5 to 15 feet. Waterholding capabilities appear to be poor. Leakage is expected through both abutments. Pervious material for dam construction was located near the site; impervious material was not located.

Engineering Notes:

The right abutment is recommended for the emergency spillway location.

Location:

On Drakes Brook about 1050 feet downstream from John March Road in Ashfield, Massachusetts.

Ashfield, Massachusetts U.S.G.S. Quadrangle

Latitude: 42°33'55" Longitude: 72°45'35"

Facilities Affected:

Facilities
House & barn, pond
John March Road
Wire electric line

Elevation
11114
1090
1090

Geologic Conditions:

High on the left abutment is a silty sand with sand and gravel at the toe of the slope. The right abutment is glacial till. The surficial deposits are sand, gravel, and silty sand. Streambed material is gravel. Depth to bedrock in the foundation is estimated to be from 15 to 25 feet. Waterholding capabilities appear to be fair. Leakage is expected through the left abutment. Borrow material for dam construction was located near the site.

Engineering Notes:

The right abutment is recommended for the emergency spillway location.

SITE DE-1611

Location:

On Bear River about 2425 feet upstream of Shirkshire Road in Conway, Massachusetts.

Shelburne Falls, Massachusetts U.S.G.S. Quadrangle

Latitude: 42°32'16" Longitude: 72°44'01"

Facilities Affected:

Facilities
House & barn
730
Sapiens Road
705
3 wire utilities
705
Pfersick Road
698
4 wire utilities
698

Geologic Conditions: Both abutments are glacial till. The surficial deposits are glacial till with some valley fill sand and gravel in the foundation. Streambed materials are cobbles and boulders. Depth to bedrock in the foundation is estimated to be from 25 to 30 feet. Waterholding capabilities appear to be good. Borrow material for dam construction was located near the site.

Engineering Notes:

The right abutment is recommended for the emergency spillway location. Preliminary structure designs indicate that a concrete chute emergency spillway may be needed at this site.

Location:

On Bear River at Pfersick Road in Ashfield, Massachusetts.

Shelburne Falls, Massachusetts U.S.G.S. Quadrangle

Latitude: 42°32'09" Longitude: 72°44'33"

Facilities Affected:

Facilities	Elevation
Tobacco barn	795
Camp	790
House & barn	772
High tension towers	
(7 cables)	760
Murray Road	739
Utilities (5 wire)	739
Barn	735
Barn	730
House	725
Pfersick Road	700
Utilities (4 wire)	700
Utilities (2 wire)	700

Geologic Conditions: The left abutment is outwash sand and gravel. The right abutment is glacial till. The surficial deposits are glacial till, outwash sand and gravel and schist bedrock. Streambed materials are cobbles and boulders. Depth to bedrock is estimated to be from 40 to 50 feet. Waterholding capabilities appear to be fair. Leakage is expected through the left abutment. Borrow material for dam construction was located near the site.

Engineering Notes:

Preliminary structure designs indicate that a concrete emergency spillway (monolithic conduit or chute structure) may be needed at this site.

SITE DE-1613

Location:

On Bear River about 3500 feet downstream from Phillips Road in Ashfield, Massachusetts.

Ashfield, Massachusetts U.S.G.S. Quadrangle

Latitude: 42°33'00" Longitude: 72°46'48"

Facilities Affected:

Facilities	Elevation
Sugar house	1050
House	1045
Barn	1040
Barnes Road	1040
6 wire utilities	1040

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SITE DE-1613 (Cont'd)

Geologic Conditions:

Both abutments are glacial till. The surficial deposits are glacial till and schist bedrock high on both abutments. Streambed materials are gravel and boulders. Depth to bedrock in the foundation is estimated to be from 15 to 20 feet. Waterholding capabilities appear to be good. Borrow material for dam construction was located near the site.

Engineering Notes:

The right abutment is recommended for the emergency spillway location.

SITE DE-1614

Location:

On Bear River-centerline crosses Baptist Corner Road in Ashfield, Massachusetts.

Ashfield, Massachusetts U.S.G.S. Quadrangle

Latitude: 42°32'35" Longitude: 72°46'32"

Facilities Affected:

Facilities Elevation
House 995
Barn 980
Shed 975
House 970
Barnes Road 960
Baptist Corner Road all

Geologic Conditions:

Both abutments are glacial till, but probably shallow to bedrock in the right abutment. Surficial deposits are glacial till. Streambed materials are cobbles and boulders. Depth to bedrock in the foundation is estimated to be from 15 to 20 feet. Waterholding capabilities appear to be good. Borrow material for dam construction was located near the site.

Engineering Notes:

The right abutment is recommended for the emergency spillway location.

Location:

On South River 3700 feet upstream of Emmets Road in Ashfield, Massachusetts.

Ashfield, Massachusetts U.S.G.S. Quadrangle

Latitude: 42°31'51" Longitude: 72°47'02"

Facilities Affected:

Facilities
Barn
Garage
Baptist Corner Road
8 wire utilities

Elevation
1192
1175
1170

Geologic Conditions:

The left abutment is thin discontinuous englacial drift with schist outcrops. The right abutment is outwash sand and gravel. Surficial deposits are outwash sand and gravel and schist bedrock. Bedrock is moderately fractured in outcrops. Streambed materials are gravel and cobbles. Depth to bedrock in the foundation is estimated to be from 5 to 15 feet. Waterholding capabilities appear to be poor. Leakage is expected through the foundation and the right abutment. Borrow material for dam construction was located near the site.

Engineering Notes:

The right abutment is recommended for the emergency spillway location.

SITE DE-1616

Location:

On South River about 350 feet upstream of Emmets Road in Ashfield, Massachusetts, centerline is located on Emmets Pond.

Ashfield, Massachusetts Quadrangle

Latitude: 42°31'22" Longitude: 72°46'52"

Facilities Affected:

FacilitiesElevationRoute 1161120House1110Utilities1110

Geologic Conditions:

Both abutments are outwash sand and gravel in the lower elevations, but may be englacial drift near the top. Surficial deposits are outwash sand and gravel, englacial drift, and schist bedrock. Bedrock is moderately fractured in outcrops. Streambed material is gravel. Depth to bedrock in the foundation is estimated to be from 30 to 40 feet. Waterholding capabilities appear to be poor. Leakage is expected through both abutments and the foundation. Borrow material for dam construction was located near the site.

SITE DE-1616 (Cont'd)

Engineering Notes:

This is Site M4F-6 that was included in the Comprehensive Study of the Connecticut River Basin, U.S. Dept, of Agriculture, June 1970. The left abutment is recommended for the emergency spillway location. There is a breached dam at this site which would have to be removed. Preliminary structure designs indicate that a concrete chute spillway will probably be needed at this site.

SITE DE-1617

Location:

On Creamery Brook about 1550 feet upstream of junction of Stage Road and Ashfield Road in Ashfield, Massachusetts.

Ashfield, Massachusetts U.S.G.S. Quadrangle

Latitude: 42°31'11" Longitude: 72°47'22"

Facilities Affected:

Facilities Elevation
Ashfield Road 1092
5 wire utilities 1092
House 1180
House 1175
Barn with 2 silos 1168

Geologic Conditions:

The left abutment is outwash sand and gravel. The right abutment is englacial drift. Surficial deposits are englacial drift and outwash sand and gravel. Streambed materials are cobbles and boulders. Depth to bedrock in the foundation is estimated to be from 15 to 20 feet. Waterholding capabilities appear to be fair to poor. Leakage is expected through the left abutment. Borrow material for dam construction was located near the site.

Engineering Notes:

The left abutment is recommended for the emergency spillway location.

Location:

On Creamery Brook about 950 feet downstream of Ashfield Road in Ashfield, Massachusetts.

Ashfield, Massachusetts U.S.G.S. Quadrangle

Latitude: 42°30'29" Longitude: 72°46'51"

Facilities Affected:

Elevation
1070
1060
1060
1060
1055
1050
1025
1010
1010
1010

Geologic Conditions:

The left abutment is probably thin englacial drift, underlain by schist bedrock. The right abutment is schist bedrock with thin discontinuous englacial drift. The surficial deposits are valley fill, englacial drift, and schist bedrock. Bedrock is slightly fractured in outcrops. Streambed materials are cobbles and boulders. Depth to bedrock in the foundation is estimated to be from 30 to 40 feet. Waterholding capabilities appear to be fair. Leakage is expected through the foundation. Borrow material for dam construction was located near the site.

Engineering Notes:

Preliminary structure designs indicate that a concrete chute spillway will probably be needed at this site.

SITE DE-1619

Location:

On Chapel Brook about 2900 feet upstream of junction with Moore Hill Road and Wing Hill Roads in Ashfield, Massachusetts.

Goshen, Massachusetts U.S.G.S. Quadrangle

Latitude: 42°28'32" Longitude: 72°47'00"

Facilities Affected:

Facilities	Elevation
House	1520
West Road	1510
House & barn	1510
Utilities 2 wires & cable	1510

SITE DE-1619 (Cont'd)

Geologic Conditions: The left abutment is glacial till with bedrock outcrops. The right abutment is glacial till. Surficial deposits are swamp, glacial till, and schist bedrock. Rock outcropping is slightly fractured. Streambed materials are cobbles and boulders. Depth to bedrock in the foundation is estimated to be from 10 to 20 feet. Waterholding capabilities appear to be good. Borrow material for dam construction was located near the site.

Engineering Notes:

The right abutment is recommended for the emergency spillway location.

SITE DE-1620

Location:

On Chapel Brook about 450 feet upstream from West Ludwig Road, in Ashfield, Massachusetts.

Goshen, Massachusetts U.S.G.S. Quadrangle

Latitude: 42°28'19" Longitude: 72°46'17"

Facilities Affected:

Facilities	Elevation
House	1360
House	1335
House & barn	1330
House	1320
Barn & sugar house	1320
Utilities 2 wire & Tel.	1320
Wing Hill Road	1320
Trailer	1315
Ludwig Road	1312
Ludwig Branch Road	1312

Geologic Conditions:

The left abutment is a poorly graded sand and gravel. englacial drift. The right abutment is silty sand glacial till. The surficial deposits are englacial drift and glacial till. Streambed material is boulders. Depth to bedrock in the foundation is estimated to be from 15 to 25 feet. Waterholding capabilities appear to be fair. Leakage is expected through the left abutment. Borrow material for dam construction was not located near the site.

Engineering Notes:

The right abutment is recommended for the emergency spillway location. If the site is developed to elevation 1355 feet, a dike will be required to the south of the reservoir.

Location:

On Chapel Brook about 850 feet upstream from Williamsburg Road in Ashfield, Massachusetts.

Goshen, Massachusetts U.S.G.S. Quadrangle

Latitude: 42°28'52" Longitude: 72°45'48"

Facilities Affected:

Facilities	Elevation
House & barn	1255
Trailer	1255
Barn	1240
House	1235
House	1230
Williamsburg Road	1224
DAR Forest Ludwig Road	1224
House	1220
House	1210
Williamsburg Road	1190
Utilities 3 wires	1190

Geologic Conditions: The left abutment is schist bedrock overlain by thin discontinuous glacial drift. The right abutment is poorly graded gravel with silty sand glacial till and schist bedrock at higher elevations. The surficial deposits are gravel terrace, glacial till and grey schist bedrock. Rock outcrops are slightly jointed. In the foundation there is schist outcropping at the surface. Streambed material is boulders. Waterholding capabilities appear to be good. There may be some leakage through the right abutment. Borrow material for dam construction was located near the site.

Engineering Notes:

The left abutment is recommended for the emergency spillway location. If the site is developed to elevation 1245, a dike will be required to the southwest of the reservoir, and one south of the reservoir if development is to elevation 1255 feet. Waterholding capabilities might be improved by a cutoff through the gravel on the right abutment.

Public Ownership:

Below elevation 1270 feet, a small portion of the reservoir area is owned by the Trustees of Reservations.

Location:

On Poland Brook about 4150 feet upstream from confluence with South River in Conway, Massachusetts.

Shelburne Falls, Massachusetts U.S.G.S. Quadrangle

Latitude: 42°30'10" Longitude: 72°44'51"

Facilities Affected:

Facilities Elevation
House & barn 920
Houses (2) 910
House & barn 905
North Poland Road 870
Utilities 870

Geologic Conditions:

Both abutments are glacial till, and shallow to schist bedrock in the right abutment. Surficial deposits are glacial till and schist bedrock. Streambed materials are cobbles and boulders. Depth to bedrock in the foundation is estimated to be from 15 to 20 feet. Waterholding capabilities appear to be good. Borrow material for dam construction was located near the site.

Engineering Notes:

This is Site M4F-5 that was included in the Comprehensive Study of the Connecticut River Basin, U.S. Dept. of Agriculture. For higher developments of this site, the left end of the dam should be moved upstream and parallel to north Poland Road. Preliminary structure designs indicate that a concrete chute spillway may be required at this site.

SITE DE-1623

Location:

On South River about 450 feet downstream from junction with Poland Brook in Conway, Massachusetts.

Shelburne Falls, Massachusetts U.S.G.S. Quadrangle

Latitude: 42°30'46" Longitude: 72°44'34"

Facilities Affected:

Facilities House	Elevation 880
Hill Road	870
Utilities (12 wires)	870
Poland Road	870
House & barn	870
Barn	865
2 houses and barn	855
3 barns	850
House and garage	850
House, garage	845
House	840
House	830
House	825

SITE DE-1623 (Cont'd)

820 Facilities 2 houses Affected: (Cont'd) 3 houses, garage barn 815 810 Sugar house 810 House 805 House 795 Route 116 North Poland Road 795 Utilities (10 wires) 795

Geologic Conditions:

Both abutments are glacial till and shallow to schist bedrock. Surficial deposits are glacial till and sand and gravel in the reservoir. Streambed materials are gravel and cobbles. Depth to bedrock in the foundation is estimated to be from 5 to 15 feet. Waterholding capabilities appear to be good. Borrow material for dam construction was located near the dam.

Engineering Notes:

Preliminary structure designs indicate that a concrete emergency spillway (either monolithic conduit or chute structure) may be required at this site.

SITE DE-1624

Location:

On Johnny Bean Brook about 2950 feet upstream from Poland Road in Conway, Massachusetts.

Shelburne Falls, Massachusetts U.S.G.S. Quadrangle

Latitude: 42°30'05" Longitude: 72°43'03"

Facilities Facilities Elevation

Affected: Poland Road 877

House 850
2 stall garage 847

Horse barn 845

Geologic Conditions: At the toe of the left abutment the material probably is a glacial till with thin gravel and schist bedrock at higher elevations. The right abutment is probably an outwash sand and gravel. The surficial deposits are gravel. Streambed material is cobbles and boulders. Depth to bedrock in the foundation is estimated to be from 5 to 15 feet. Waterholding capabilities appear to be fair. There may be some leakage through the right abutment. Borrow material for dam construction was located near the site.

Engineering Notes:

The right abutment is recommended for the emergency spillway location.

Location:

On South River 75 feet upstream from Route 116 in Conway, Massachusetts.

Shelburne Falls, Massachusetts U.S.G.S. Quadrangle

Latitude: 42°43'21" Longitude: 72°43'13"

Facilities Affected:

740 740
728
700
695
690
690
690
682
675
669

Geologic Conditions:

The left abutment is glacial till; shallow to bedrock at the higher elevation and a poorly graded gravel and sand gravel terrace at the lower elevation. The right abutment is glacial till and shallow to schist bedrock. The surficial deposits are gravel terrace, glacial till and schist bedrock. The rock outcrops are slightly fractured. Streambed materials are gravel and cobbles. Depth to bedrock is estimated to be from 10 to 20 feet. Waterholding capabilities appear to be fair. Leakage is expected through the gravel on the left abutment. Borrow material for dam construction was located near the site.

Engineering Notes:

The left abutment is recommended for the emergency spillway location. Waterholding capabilities might be improved by a cutoff through the gravel on the left abutment.

SITE DE-1626

Location:

On South River about 900 feet upstream from Reeds Bridge Road in Conway, Massachusetts.

Shelburne Falls, Massachusetts U.S.G.S. Quadrangle

Latitude: 42°32'24" Longitude: 72°41'48"

Facilities Affected:

Facilities	Elevation
House	560
House, barns, tobacco shed, 2 silos	540
House	538
House, garage	535

SITE DE-1626 (Cont'd)

Facilities	Utilities	532
Affected: (Cont'd)	Store, 4 houses	530
	House	525
	House	522
	4 houses, barn	520
	Bardwell Ferry Road	515
	Shelburne Falls Road	515
	Tobacco shed	515
	Utilities (9 wires,	
	1 cable)	515
	2 houses, silo barn	510

Geologic Conditions: The left abutment is an outwash sand and gravel. The right is an englacial drift and shallow to schist bedrock. The surficial deposits are outwash sand and gravel, terrace sand and gravel, englacial drift, and schist bedrock. In outcrops the bedrock is very slightly fractured. Streambed materials are cobbles and boulders. Depth to bedrock in the foundation is estimated to be from 15 to 20 feet. Waterholding capabilities appear to be fair. Leakage is expected through the left abutment. Eorrow material for dam construction was located near the site.

Engineering Notes:

Preliminary structure designs indicate that a concrete chute spillway may be required at this site.

SITE DE-1627

Location:

On South River about 1200 feet downstream from Chadwick Brook in Conway, Massachusetts

Shelburne Falls, Massachusetts U.S.G.S. Quadrangle

Latitude: 42°32'03" Longitude: 72°40'39"

Facilities Affected:

Facilities
Tobacco shed

Flevation 420

Geologic Conditions:

Both abutments are thin glacial till and very shallow to schist bedrock, with schist outcrops at lower elevations. The surficial deposits are glacial till and schist bedrock. Outcrops are highly fractured. There are rock outcrops in the streambed at the centerline of the dam. Streambed materials are boulders and bedrock. Waterholding capabilities appear to be good. There will be a large amount of rock excavation to remove loose rock in the foundation. Borrow material for dam construction was located near the site.

SITE DE-1627 (Cont'd)

Engineering Notes:

Preliminary structure designs indicate that a concrete chute emergency spillway may be required at this site.

Public Ownership:

Below elevation 430 feet, approximately 10 acres lie within the South River State Forest.

SITE DE-1628

Location:

On Shingle Brook about 9000 feet upstream from Hawks Road in Shelburne, Massachusetts.

Shelburne Falls, Massachusetts U.S.G.S. Quadrangle

Latitude: 42°34'07" Longitude: 72°39'21"

Facilities Affected:

 Facilities
 Elevation

 House
 630

 Dairy barn
 620

 Garage
 620

Geologic Conditions:

The left abutment is glacial till and swamp deposits at lower elevation. The right abutment is a poorly graded sand and gravel, gravel terrace, with schist outcrops at higher elevations. The surficial deposits are swamp, gravel terrace and glacial till. The rock outcrops are moderately jointed. Streambed materials are gravel and cobbles. Depth to bedrock in the foundation is estimated to be from 50 to 60 feet. Waterholding capabilities appear to be fair. Some leakage is expected through the right abutment. Borrow material for dam construction was located near the site.

Engineering Notes:

The left abutment is recommended for the emergency spillway location. Waterholding capabilities might be improved by a cutoff through the sand and gravel on the right abutment.

Location:

On Shingle Brook about 3500 feet upstream from junction with the Deerfield River in Conway, Massachusetts.

Shelburne Falls, Massachusetts U.S.G.S. Quadrangle

Latitude: 42°33'11" Longitude: 72°39'31"

Facilities Affected:

Facilities Elevation

Barn 510

House 500

West Deerfield Road 450

Utility (2 wires) 450

Hawkes Cemetery 450

Sugar House 450

Geologic Conditions: Both abutments are thin discontinuous outcrops of englacial drift underlain by schist bedrock. The surficial deposits are englacial drift and schist bedrock. Rock outcrops are moderately fractured with fractures open. Streambed material is silty gravel. Depth to bedrock in the foundation is estimated to be from 10 to 15 feet. Waterholding capabilities appear to be good. Borrow material for dam construction was located near the site.

Engineering Notes:

The right abutment is recommended for the emergency spillway location.

SITE DE-1630

Location:

On Hawks Brook about 2900 feet upstream of Hawks Road in Conway, Massachusetts.

Shelburne Falls, Massachusetts Guadrangle
Latitude: 42°32'53" Longitude: 72°38'55"

Facilities Affected:

None below elevation 510.

Geologic Conditions: Both abutments and the surficial deposits are schist bedrock. Rock outcrops are highly fractured. In the streambed there are schist bedrock outcrops. Streambed materials are cobbles and bedrock. Waterholding capabilities appear to be good. There will be a large quantity of rock excavation needed to remove loose rock from the foundation. Borrow material for dam construction was not located near the site.

Engineering Notes:

The right abutment is recommended for the emergency spillway location. Borrow may have to come from an off-site location.

Location:

On an unnamed brook flowing into Chapel Falls Brook about 1000 feet downstream of Williamsburg Road in Ashfield, Massachusetts.

Goshen, Massachusetts U.S.G.S. Quadrangle

Latitude; 42°29'18" Longitude: 72°45'34"

Facilities Affected:

Facilities
Williamsburg Road
Bird Hill Road

Elevation 1225

Geologic Conditions:

The left abutment is schist overlain by thin discontinuous englacial drift. The right abutment is glacail till, shallow to schist bedrock with schist bedrock along the stream. The surficial deposits are englacial drift, glacial till and schist bedrock. Rock outcrops are slightly fractured. There is schist outcropping in the stream. Streambed materials are boulders and bedrock. Waterholding capabilities appear to be good. Borrow material for dam construction was located near the site

Engineering Notes:

The right abutment is recommended for the emergency spillway location. If the site is developed to elevation 1205 feet, a dike will be required to the east of the reservoir.

SITE DE-16A Ashfield Lake

Location:

On South River approximately 700 feet upstream from the intersection with Buckland Road in Ashfield, Massachusetts.

Surface Elevation	Surface Area (Acres)	Height of Dam (Ft.)	Drainage Acres	Sq. Mi.
1250	38	13	655	1.02
Potential for Expansion:	Buckland Ro	The lake is in a pad, Route 112, and these roads and	and Route 11	6. Expansion
Remarks:	dam with a long with a outlet to or rip-rap on spillway ha	ure consists of a masonry spillway a 4 foot head. The drain the reserve the upstream factors been repaired ankment is covered through	The weir there is also oir. There ce of the date with concreted with trees.	r is 30 feet so a gated is rock am. The ete. Most es and brush.
Ownership and Use:		oir is owned by t Massachusetts, ar •		for



SITE DE-16B Conway Electric Dam

Location:

On the South River approximately 3400 feet upstream from the confluence with the Deerfield River in Conway, Massachusetts.

Surface	Surface Area	Height of	Draina	ge Area
Elevation	(Acres)	Dam (Ft.)	Acres	Sq. Mi.
285	1	65	16515	25.82

Potential for Expansion:

Poor; the surface area could be increased to about 10 acres, but modification or removal of the existing dam would be quite expensive.

Remarks:

The dam is a 110 foot long masonry structure. The structure is constructed in a gorge; both abutments are bedrock. An old penstock is located in the left abutment. There is leakage on the left abutment probably caused by deterioration of the penstock.

Ownership and Use:

The reservoir is owned by the Massachusetts Department of Natural Resources and is used for recreation.



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DA= 3.09 SQ MI = 1978 AC	* * * *	***	***	***************************************	***	***	. 1	***		***************************************	* * * * *	****		***		1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1	
STREAM WATER QUALITY (B) 100-YR PRIN SPWY DESIGN STORM RUNDFF = 8.30 IN, PEAK FLOW = 8.30	1402		0.4-	00	1 1 1 1 1 1	070 AC		VIIO	101375	DAIC			ATTIO	4.2.22	0,0,	T T T T T T T T T T T T T T T T T T T	72 66 0
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	۵	DA= 10.26	26 SQ MI	= IW	6566 AC		USGS QUA	QUAD-SHELBURNE	BURNE	FALLS		LATITUDE	JE 42-	45-35-45	LONGITUDE	UDE 7	72-43-14
RATING (1)		STREAM	M WATER		QUALITY (B)	100	00-YR PRIN		V DESIG	SPWY DESIGN STORM	RUNDEF	n	3.30 I	8.30 IN, PEAK FLOW		= 24	2440 CFS
1222	2.2	1750	20	42690	9.69	* *	622.5 T	1304	2.4	1640	637.0	0 84	* 64	642.7	90 48	485 *	2.41
	2.7	1440	55	39390	74.9	* :	627.9 T	1583		1370	* 642.0	0 102	* 64		95 57	570 *	2.70
2339	4.3	970	93	24410	86.6	*	639.5 T	2421	4.4	* 046	646.	0 10	* 64	649.5		601 *	3.53
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	0.0		2		8.1	*	916.0 E	303	4.1	1220 +	918.5		* 921	7		*	***
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	14.2	1110	44	26100		*	1			920 *			* 95			403 *	0.92
1566 2	25.0	830	54	24310	74.1	*	954.5 E	1713	23.5	760	* 957.0	59	* 95	959.0	86 67	562 *	1.09
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MER	EMERGENCY	SPILLWAY	WAY TY	TYPE CODE	CODE- C=CONCR	NCRETE	CHUTE		DNCRETE	DROP,	E=EXCAVATED,	VATED,	T= TWO	SPILI	AYS,	N= NONE	NE.
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****		******	HCT VOI		FT (******	LONGITUDE	AK FLOW	,	32			70		*******	AK FIOW		32			09		*****	LONGITUDE			09	89				85		POOL.	LLWAYS,	AND AF
	DAM	*******	10P		(MSL)	*******	LATITUDE 42-33-00	8.30 IN. PEAK FLOW	0 1701	1042 4	1057.9	1069.9	1079.6		本事事事事事事事	A 30 TN PEAK FLOW		964.5	977.8	986.8	90166	8.866		LATITUDE 42-31-51	O IN, PE		1174.6	1183.0	1188.3	1194.5	1199.9	1199.6		ICIAL PO	E=EXCAVATED, T= TWO SPILLWAYS,	TWEEN DEVELOPMENTS ONLY, AND ARE NOT
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	DESIGN HIGH WATER	******	EI EV		(MSL)	******	LA	RUNDFF	, 000	1041	1056.5	1068.3	1077.6		****	CNITA		961.5	975.1	983.6	989.3	0.966		T	RUNDEF		1171.8	1180.4	1185.6	1192.0	1197.6	1197.5		INCLUDIN	E=EXCAVA	TWEEN DE
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	EMERGENCY SPILLWAY	· · · · · · · · · · · · · · · · · · ·	STURAGE AT CREST	I CAESI	AC FT IN	**********	-ASHF1	SPWY DESIGN	1 2001	120 % 0	-		787 27.2		本本市中市中市市市市市市市市市市市市市市市市市市市市市市市市市市市市市市市市	SPHY DESTEN	1	494 5.0		1879 18.7	2312, 23.2	2911 29.2		QUAD-ASHFIELD	SPWY DESIGN		425 4.6				1226 13.5	1283 14.2	AND COST DATA.	ON TOTAL ST	CONCRE	0-1 FOOT TO SHOW VARIATION BETWEEN DEVELOPMENTS ONLY, AND
	EMERGE	********	CREST	TYPE		*********		100-YR PRIN		1030 0 5	1054.1 E	_	1075.1 E		******		1	959.0 E		981.3 E		993.6 E		USGS QUAL		1	1169.3 E	1178.0 E	- 1	1189.5 E	1191.3 T	1192.5 T	DESIGN CRITERIA	ARE BASED		0.1 FOOT TO SH
	* *	******	DEPTH *	WYO	(FT) *				* :	76.7	41.5 *	53.4 *	62.6 *	*	*********		*	5.1 #	34.2 #	45.8 #	50.3 #	57.1 *				*	19.7 *	50.5 *	57.5 *	* 0 * 89	76.3 #	77.5 *	S. DESIGN			Z
		******	COST	AC	(\$)	*******	MI =	R QUALI		20450	37960	06555	44280		*****	OTIVI			10190	11370	11870	12870		MI = 1(QUAL			19930	17850	15170	18140	17240	71 S.C.	STORAGE AND	TYPE CODE-	TO THE !
	POOL	*****	ADCA		(AC)	*******	0.54 SQ MI	STREAM WATER QUALITY (B)	•		91 0				中央市市市市市市市市市市市市市市市市市市市市市市市市市市市市市市市市市市市市	STREAM WATER		S				0 86		1.70 SO MI	STREAM WATER							0 48	BASED ON 1971 S.C.S.	SPILLWAY ST	SPILLWAY TY	E SHOWN
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********* * SAFE * YIELD		*CHANCE	(AC) * (MSL) FT CY) * (MGD)	DE 72-47-00 183 CFS	****	* *	* *	· · · · · · · · · · · · · · · · · · ·	DE 72-46-17			*	*	* *	电影电影电影电影电影电影电影电影电影电影电影电影电影电影电影电影电影电影电影	DE 72-45-48 720 CFS		*	5 * 0.79	* *	. 1			- 1	PURPOSES.	NOT TO BE
***	****	3T VOL	CY)	-32 LONGITUDE PEAK FLOM =	16 35	21 65	1	****	19 LONGITUDE		-	48 140		148	*****	LONGITUDE			74 335						ഗ	
DAM	*****	EL EV HGT	(MSL) FT	42-28-32 0 IN, PEAK	1505.8			*****	42-28-19						******	42-28-52 0			1244.1		1				TWO SPILLWAYS	S ONLY,
* * *	*****	AREA * ELE	(AC) + (P	LATITUDE 42-28- FF = 8.20 IN.	* * *	42 * 15	* *	*	LATITUDE 42-28	* * 6	1 1		*	* 4	*****	LATITUDE 42 FF = 8.20	*	*	60 + 12	*	*	100 * 15		BENEFIC	'ED, T= 1 NRILY FOR	FLOPMENT
LLWAY + DESIGN + HIGH WATER	市市市市市市市市市市市市市市市市市市市市市市市市市市市市市市市市市市市市市市	ELEV /	(MSL)	. 0	1503.1	1508.5	1513.6	****	LAI	127.1	134101	1356.0	1355.4	1357.4	*****	RUND		1233.3	1241.5	1258-8	1267.3	-		INCLUDING BENEFICIAL	E=EXCAVATED, T≈ TWO SPILLWAY: ARE PRIMARILY FOR COMPARISON	TWEEN DE
* * *	*	PER +	(\$)	GN STORM	1650 *	1290 *	1070 *	* * * * * * * *	AN STORM	* *	* 000		1060 *	1020 *	* * * * * * *	GN STORM		1280 *	1020 *	* 069	810 *			JRAGE,	DROP,	ATION BE
**************************************	************************	STURAGE AT CREST	AC FT IN (\$)	QUAD-GOSHEN PRIN SPWY DESIGN STORM		302 9.3	524 16.4 702 21.9	***************************************	QUAD-GOSHEN	200 7 200	+ 1	721 9.2	621 7.8		******	QUAD-GOSHEN PRIN SPWY DESIGN			1106 8.6			2889 22.6	AND COST DATA.	ON TOTAL S	D=CONCRETE ON FIGURES	
******* EMERGENC)	*****		L) AC	GS QUAD-C	ши	u u	யய	***	GS QUAD-C		u	יוו ו	-	-	*****	QUAD-		ш	w u	u u	ı —	-	TERIA			FOOT TO
* * *	*	TH * CREST * ELEV * ** TYPE		AC USGS (B) 100-YR	1.7 * 1500.6	* *	* *	* *	1	* :		. *	*	* *	*	AC USGS B) 100-YR	*	*	.5 * 1239.0	*	*		DESIGN CR	COSTS ARE	TYPE CODE— C=CONCRETE CHUTE, SED ON PRELIMINARY INFORMATIO	ST 0.1
*	****	SURF AT		384 LITY (1.7			****	= 941		25520 28	24380 35.0			*****	= 1536 AC			30850 56.5			23740 92.5	1971 S.C.S. D	SE AND C	CODE- C=(THE NEAREST
AL POOL	****	AREA SURF	(AC) (= 0.60 SQ MI = STREAM WATER Q	4 120		1	****	1.47 SQ MI =	4			1		****	WATER				75 212		93 23	1791 NC		AY TYPE BASED OF	ARE SHOWN TO THE ACCURATE TO THAT
**************************************	****	PER AT ET	(\$)	DA= 0.6 STREAM	0276	1840	1390		DA= 1.47		1440	1340	1080	1040	****	DA= 2.40 STREAM			2270	880	820	770	E BASED ON		EMERGENCY SPILLWAY TYPE CODE— C=CON TABULAR DATA ARE BASED ON PRELIMINA	NS ARE S
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* * * * * * *	*****	1	L) AC F	SITE-DE-1619 SITE RATING		114		*	SITE-DE-1620		4 212			• 5 674	* * * * * *	SITE-DE-1621 SITE RATING			1 6498			. 5 2869	S - (1)	(2)	(4)	(5)
*	* * *	ELEV	(MSL)	SITE	1491.6	1503.6	1508.9	*	SITE	121	1228 6	1345.1	1350.5	1352	* * *	SITE		1190	1226.5	1249.9	1260.4	1262.5	NOTES			

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SUMMARY

COST ALCOHOL COST		BENEFICIAL POOL	BENEFICIAL	L POOL				* EME	EMERGENCY	EMERGENCY SPILLWAY	1 .	* DESIGN * HIGH WATE	DESIGN HIGH WATER	* *	DAM	Σ	* *	SAFE
AC FR AREA AC AC AC AC AC AC AC	***	***	****	*****	*	COST/	DEPTH 4		*	AGE	ķ		1	* *		*	*	ERCENT
The control of the		STORAGE	PE	FT	AREA	SURF		+ ELEV + TYPE		REST	AC FT	ברבי		* *			8	HANCE
DA= 5.49 SQ HI = 3514 AC. USGS QUAD-SHEEBURNE FALLS LATITUDE 42-30-10 LONGITUDE	MSL) A	C FT I		\$)	(AC)	(\$)		(MSL)	AC F1	Z	(\$)		(AC)	* :	SL)	FT C	¥ (\	(MGD)
0.00 0.00 0.00 0.00 0.00 0.00 0.00 0.0	****** TE-DE-1 SITF RA	622 TING (1)	DA=	5.4 TREAM	9 SQ P	1I = 3			QUAD-SI	TELBURNE	FALLS GN STOR	* '	LATITU	DE 42	-30-10 IN PE	LONGIT AK FLOW	UDE 1	2-44-51 99 CFS
2 3.8 930 77 13530 40.5 855.5 I 1166 4.0 900 868.5 108 8 813.9 59 140 8 14.2 380 131 12300 69.5 8 87.5 I 1166 4.0 900 868.5 108 8 819.3 74 276 8 14.2 380 131 12300 69.5 8 87.5 I 2697 9.2 520 883.8 128.8 899.5 74 576 8 18.2 320 131 12300 69.5 8 89.5 I 4.2 320 895.5 164 8 899.8 8 5 405 8 18.2 320 154 11080 77.5 8 892.5 I 5372 18.2 320 8 897.5 164 8 899.8 8 5 405 8 18.2 320 15.3 05 M I = 9792 AC USGS QUAD-SHEGBINE FALLS I 111100 185 18480 50.5 8 840.5 I 3510 4.3 980 854.6 275 8 83.0 74 246 407 8 4.1 1010 185 18480 50.5 8 840.5 I 3910 4.3 980 854.6 275 8 83.9 74 246 407 8 7.1 5 80 946 8 15.5 1 10810 185 18480 50.5 8 870.5 I 1080 18.2 1 10.0 185 18480 50.5 8 870.5 I 10.0 10.0 10.0 10.0 10.0 10.0 10.0 10	7 00				a		12.2	-		5 4 1	740		301	* *		8.5		
3 9.1 530 112 12240 69.5 8 847.5 1 2091 9.2 520 8 883.5 1 64 8 899.6 85 405 8 18.2 320 154 11200 69.5 8 847.5 1 2014.3 300 895.5 164 8 899.8 85 405 8 18.2 320 154 11080 77.5 8 892.5 T 5372 18.2 320 8 995.5 164 8 899.8 85 405 8 18.2 320 154 11080 77.5 8 892.5 T 5372 18.2 320 8 995.5 164 8 899.8 85 405 8 18.2 320 154 11080 77.5 8 892.5 T 5372 18.2 320 8 897.5 164 8 899.8 85 405 8 18.2 30 154 11080 77.5 8 80.0 5 10 14.2 8 80.0 5 1 14.2 8 80.0 5 1 14.2 8 80.0 1 1 1 1 10.2 8 80.0 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1				930	77	13530		1	- 1		006	# 868 •	1	*	73.9		* 05	1.77
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G (1) STREAM WATER QUALITY (B) 100-YR PRIN SPWY DESIGN STORM RUNGFF = 8.20 IN. PEAK FLOW = 4.00.0 6 (1) STREAM WATER QUALITY (B) 100-YR PRIN SPWY DESIGN RUNGFF = 8.20 IN. PEAK FLOW = 4.00.0 7 13.1 390 365 11460 50.5 * 840.5 T 5947 7.3 630 * 855.6 Z75 * 863.9 74 246 7 13.1 390 365 11460 77.5 * 867.5 T 10819 13.2 390 * 880.6 442 * 889.8 100 724 7 13.1 390 365 11460 77.5 * 867.5 T 10819 13.2 390 * 880.6 442 * 889.8 100 724 8 889.8 100 72 8 889.8 100 72	* * * * *	******	****	****	***	****	******	****	******	*****	*****	*****	*****	****	*****	******	****	*******
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+ 7.1 640 253 14800 61.6 * 851.6 T 5947 7.3 630 * 865.8 353 * 874.9 85 407 * 402				010	185	18480	50.5	840.5	-		980	854		*	63.9		* 95	5.19
7 13.1 390 365 11460 77.5 * 867.5 T 10819 13.2 390 * 880.6 442 * 889.8 100 724 * 85.5 11460 77.5 * 867.5 T 15692 19.2 260 * 885.5 471 * 890.0 100 728 * * * * * * * * * * * * * * * * * * *				640	253	14800			-		630	* 865.	- 1	*			* 10	7.03
19.1 COU 430 9400 09.0 # 619.5 13092 19.2 COU # 885.5 471 # 890.0 100 (20) # 819.5 471 # 890.0 100 (20) # # # # # # # # # # # # # # # # # # #				390	365	11460			- +	~ •				* :			24 #	9.77
######################################	7.00	77 0166	7.	707	420	7400	0.60	014.0	1 120	4	007	680		* *			* 07	70.11
DA= 1.00 SQ MI = 640 AC USGS QUAD-SHELBURNE FALLS 10.0 STREAM WATER QUALITY (B) 100-YR PRIN SPWY DESIGN STORM RUNOFF = 8.20 IN. PEAK FLOW = ** 10.0 ** 10	******	******	*****	****	****	*****	*****	******	*****	******	******		******	****	*****	******	****	******
**************************************	FE-DE-1	_ (2	DA= S	-	O SQ		640 AC TY (B)		1	HELBURNE	T Z		LATITU			-		72-43-03 306 CFS
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(2) EMERGENCY SPILLMAY STORAGE AND COSTS ARE BASED ON TOTAL STORAGE, INCLUDING BENEFICIAL POOL. (3) EMERGENCY SPILLMAY TYPE CODE— C=CONCRETE CHUTE, D=CONCRETE DROP, E=EXCAVATED, T= TWO SPILLWAYS, N= NONE (4) TABULAR DATA ARE BASED ON PRELIMINARY INFORMATION. FIGURES SHOWN ARE PRIMARILY FOR COMPARISON PURPOSES. (5) ELEVATIONS ARE SHOWN TO THE NEAREST 0.1 FOOT TO SHOW VARIATION BETWEEN DEVELOPMENTS ONLY, AND ARE NOT TO	*****	*****	*****	****	****	***		****	****	*****	***	****	****	* * * *	****	*****	***	***
EMERGENCY SPILLWAY TYPE CODE- C=CONCRETE CHUTE, D=CONCRETE DROP, E=EXCAVATED, T= TWO SPILLWAYS, N= NONE TABULAR DATA ARE BASED ON PRELIMINARY INFORMATION. FIGURES SHOWN ARE PRIMARILY FOR COMPARISON PURPOSES. ELEVATIONS ARE SHOWN TO THE NEAREST 0.1 FOOT TO SHOW VARIATION BETWEEN DEVELOPMENTS ONLY, AND ARE NOT TO)			PILLW		RAGE A	ND COSTS	ARE BA			TORAGE,	INCLUE	ING BE	NEFIC	IAL PO	01.		
ELEVATIONS ARE SHOWN TO THE NEAREST 0.1 FOOT TO SHOW VARIATION BETWEEN DEVELOPMENTS ONLY, AND ARE NOT TO		1	ENCY S	PILLW	AY TY	SE CODE	- C=CONC	RETE CH	UTE, Da	CONCRET	E DROP.	E=EXCA	WATED,	# 1	MO SPI	AYS	N = N	NE S
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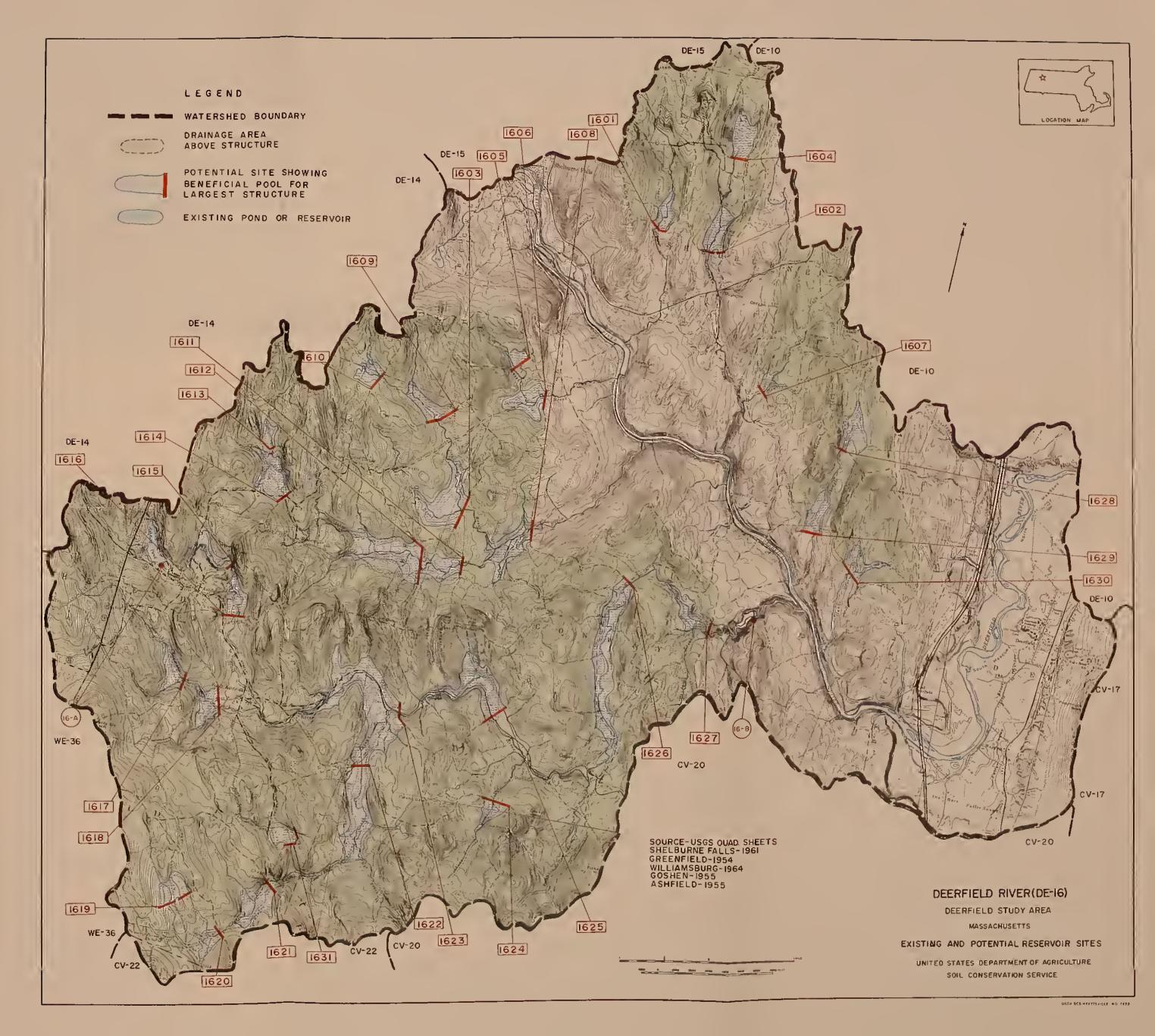
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1	STUDY AREA-DEERFIELD RIVER		STUDY	AREA-	AREA-DEERFIELD	D RIVER			*	SUBWA	SUBMATERSHED-DEERFIELD RIVER	-DEERF	IELD R	IVER				***
		BENEFI	BENEFICIAL POOL	0F			*	EMERGENCY	ENCY SP	SPILLWAY	*	DES	DESIGN		DAM		*	SAFE
							*				*	* HIGH WATER	MATER	*				
*	本本本市市中市市市市市市市市市市市市市市市市市市市市市市市市市市市市市市市市	* * * * *	********C0ST	*	COST/	****** DEPTH	* *	**************************************	****** STORAGE	* * * * *	在建筑中的市场中的市场中的市场中的市场中的市场中的市场中的市场中的市场中的市场中的市场	****	* * * * * * *	****** * TOP	***	FILL	P	* AT 95 *PERCENT
ELEV	STORAGE	AGE	PER AC FT	AREA	SURF	DAM	# T T	ELEV TYPE	AT CREST		PER *	ELEV	AREA	* ELEV	HGT	T VOL		*CHANCE
(MSL)	AC FT	N.	(\$)	(AC)	(\$)		* (MSL)	151.)	AC FT	Z	* (MSL) AC FT IN (\$) * (MSL) (AC) * (MSL) FT CY) * (MGD)	(MSL)	(AC)	(AC) * (MSL)	.) FT	ú	CY) *	(MGD)
SITE-DE-1625	ي _ ا	3	DA= 16.	93 SQ	DA= 16.93 SQ MI = 10835 STRFAM WATER DUALITY	835 AC	100	USGS QUAD-	QUAD-SHELBURNE FALLS PRIN SPWY DESIGN STO	BURNE	SHELBURNE FALLS SPWY DESIGN STORM	LA	LATITU	LATITUDE 42-43-21 LONGIT FF = 8.20 IN. PEAK FLOW	3-21 PEAK	FLOW	TUDE 7	LONGITUDE 72-43-13 FLOW = 3793 CFS
					0 7 5 5 6			1 1		7 6	* 1		300	*	u	7.4		00
729.5	3607	7-6	720	118	22050	69.5	* *	732.0 E	4044	4.5	* 049	738.2					* 062	5.64
735.3	4308	4.8	099	123	23310	75.3	*	- 1	4149	5.3	* 009	743.9		*			935 *	6.17
746.0	5712	6.3	009	145	23840	86.0	* *	748.5 E	6213	8 • 9	* 095	754.7	7 165	* 75	759.5 100	0 1250	* *	7.24
							*				*						*	
*****	9.教育教育教育教育教育教育教育教育教育教育教育教育教育教育教育教育教育教育教育	*****	******	*****	******	*****	***	****	*****	*****	· 中国中国中国中国中国中国中国中国中国中国中国中国中国中国中国中国中国中国中国	*****	*****	*****	******	*****	****	*****
SITE-DE-1626 SITE RATIN	ی	(1)	DA= 23.49 SQ MI STREAM WATER	= 23.49 SQ M		= 15034 AC	100	USGS QUADOOO-YR PRIN	1	SHELBURNE FA SPWY DESIGN	FALLS N STORM	LA	LATITU	DE 42-32 8.30 IN.	32-24 1, PEAK	24 LONGITU PEAK FLOW =	UDE 7	LATITUDE 42-32-24 LONGITUDE 72-41-48 FF = 8.30 IN, PEAK FLOW = 4691 CFS
1	i						*		i		*			*				
524.0	3964	3.2	200	172	11580	59.0	*	- 1	4152	3.3	480 *	538		*				6.73
528.4	4728	3.8	450	185	11560	63.4	* *	528.4 T	5680	6 9 5 5	430 *	542.8	8 265 5 263	* *		84 28	280 *	7.53
535.9	6256	5.0	370	223	10290	70.9	*	535.9 T	9449	5.1	360 *	544.7		*	548.5 8		277 *	8.77
							*				*			*			*	
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KITE-0F-1627	-1627		DA = 25.27 SO MI	27 50	MI = 16173	173 AC		110 2521	DIIAN-CHEI RIIRNE	1	FALLS	1	ATITIE	I AT ITHINE 42-32-03	12-03	IONGITIDE	INF 7	72-40-39
SITE	رن	(1)	STREA	MEATE	a	TY (8)	100			DESIG	SPWY DESIGN STORM	RUNOFF	1 11	8.30 IN.	I, PEAK	PEAK FLOW :		4629 CFS
, , , , ,		0	0		0000	,		1	676.	0	*			* :			* :	2 17
410004	1203	0 0	1710	4 4 8 8	43000	80.0	* *	400.4 410.0 T	1406		1460 *	424.7	7 60	*			548 *	3.47
416.4	1530	1.1	1440	5.5	41100	86.4	*		1732	1.2	1270 *	425.4		*			546 *	3.99
419.4	1693	1.2	1300	56	39160	4.68	*		1896	1.4	1160 *	426.4		*			544 *	4-22
							*				*			*			*	
						1		1	1	1	***************************************	1					* 1	***************************************
NOTES -	(1)	STS AR	E BASED	ON 15	COSTS ARE BASED ON 1971 S.C.S.	S. DESI		GN CRITERIA	A AND C	AND COST DATA.								
	(2) EME (3) EME	EMERGENCY EMERGENCY	Y SPILLWAY	MAY ST	EMERGENCY SPILLWAY STORAGE AND COSTS ARE BASED ON TOTAL STORAGE, EMERGENCY SPILLWAY TYPE CODE- C=CONCRETE CHUTE, D=CONCRETE DROP,	ND COST	S ARE	LE BASED	E, D=CONCR	TAL ST NCRETE		INCLUD	ING BE	INCLUDING BENEFICIAL POOL. E=EXCAVATED, T= TWO SPILLWAYS,	SPILL SPILL		N= NONE	NE
		BULAR	DATA AR	E BASE	TABULAR DATA ARE BASED ON PRELIMINA	EL IMINA	ARY I	Y INFORMATION. FIGURES	TION. F	N. FIGURES SHOW	Į u	ARE PR	N ARE PRIMARILY FOR (ARE PRIMARILY FOR COMPARISON	OMPARI	SON PURP	PURPOSES	S. TO OF
	(2)	NSIDER	ED ACCU	RATET	THAT	DEGREE.	5			VAKIA		MERN	DEVELU	N HE W	UNLY ,	AND AKE		-
			*	4 00 ×	** DO NOT USE FOR FINAL	FOR FIN		SITE SEL	LECTION	OR LA	SELECTION OR LAND ACQUISITION.	ISITIO	**					

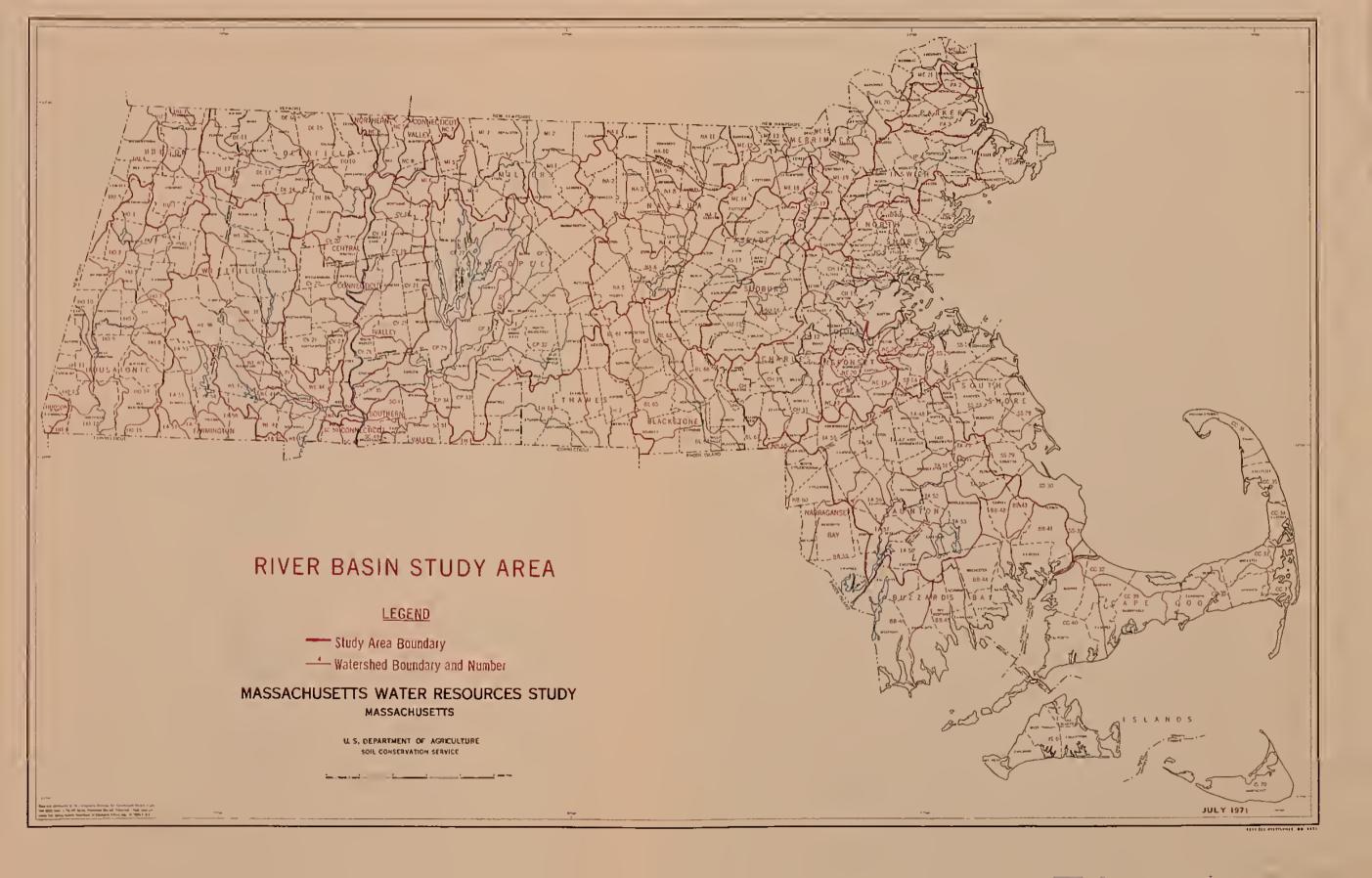
SUMMARY DATA FOR POTENTIAL UPSTREAM RESERVOIR SITES

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SUMMARY DATA FOR POTENTIAL UPSTREAM RESERVOIR SITES

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APPENDIX 1

MUNICIPAL INDEX OF SITES

City or Town	Site No.	Narrative Information Page	Design <u>Summary</u> <u>Page</u>
Ashfield	1404 1405 1406 1609 1610 1612 1613 1614 1615 1616 1617 1618 1619 1620 1621 1631 16A	71 72 72 96 97 98 98 99 100 100 101 102 102 103 104 111	74 74 74 116 117 117 118 118 119 119 119 120 120 120
Buckland	1402 1403	70 70	73 73
Charlemont	1115 1306 1310 13A	31 60 62 63	40 66 68
Colrain	1004 1006 1007 1503 1504 1506 1510 1511 1512 1513 1514	11 12 12 76 77 78 80 81 81 82 83	19 19 20 86 87 87 89 89 90

APPENDIX 1 (Cont'd)

City or Town	Site No.	Narrative Information Page	Design Summary Page
Conway	1603 1605 1606 1608 1611 1622 1623 1624 1625 1626 1627 1629 1630 16B	92 94 95 97 105 105 106 107 107 108 110	114 115 116 117 121 121 122 122 122 123 123
Florida	1201	41	52
	1202	42	52
	1207	45	54
	1208	45	54
	1209	46	54
	1212	47	55
Greenfield	1010	14	21
	10 1 1	14	21
	1013	16	22
Hawley	1304	59	66
	1305	59	66
	1307	60	67
	1308	61	67
	1309	61	67
	13B	64	
	1401	69	73
Heath	1501 1502 1505 1507 1508 1509	75 76 77 78 79 79 83	86 85 87 88 88 88

APPENDIX 1 (Cont'd)

City or Town	Site No.	Narrative Information Page	Design Summary Page
Leyden	1001 1002 1003 1005 10A	9 10 10 11 17	18 18 .18 19
Monroe	1101 1102 1103 1104 1116	23 24 24 25 31	36 36 36 40
Rowe	1105 1106 1107 1108 1109 1110 1111 1112 1113 1114 11A 11B 1301 1302	25 26 26 27 27 28 28 29 30 30 30 33 34 57 58	37 37 38 38 38 39 39 40
Savoy	1203 1204 1205 1206 1210 1211 1213 12A 12B 1303	42 43 44 44 46 47 48 49 50 58	52 53 53 53 55 55 56
Shelburne	1008 1009 1012 1601 1602 1604 1607 1628	13 13 15 91 92 93 95 109	20 20 21 114 114 115 116 123

APPENDIX-2

This report is one of a series dealing with potential reservoir sites. Previous similar reports are:

- 1. Study of Possible Water Storage Areas, Ipswich River Watershed, January 14, 1965.
- 2. Study of Possible Water Storage Sites, Upper Hoosic River and Upper Housatonic River, February 1966.
- 3. A Study of Potential Reservoir Sites in Massachusetts, Hudson River Basin, January 1968.
- A Study of Potential Reservoir Sites, Housatonic Study Area, Massachusetts, June 1969.
- 5. Inventory of Potential and Existing Reservoir Sites, Merrimack Study Area, Massachusetts, March 1970.
- 6. Inventory of Potential Reservoir Sites, Neponset Study Area, Massachusetts, October 1970.
- 7. Inventory of Potential and Existing Upstream Reservoir Sites, Thames Study Area, Massachusetts, January 1971.
- 8. Inventory of Potential and Existing Upstream Reservoir Sites, Parker and North Shore Study Area, Massachusetts, June 1971.
- 9. Inventory of Potential and Existing Upstream Reservoir Sites, Nashua Study Area, Massachusetts, March 1972.

Potential reservoir site studies are now in progress for the Chicopee, Taunton, Narragansett Bay and Ipswich Study Areas.

Other reports will be prepared in future years for the remainder of the state. Basic data from which this report was prepared are on file in the Soil Conservation Service Office, 29 Cottage Street, Amherst, Massachusetts 01002.



